DRAGON USER

March 1987

The independent Dragon magazine

Contents

Editorial

THERE has been a certain amount of activity on the newsletter front recently. Leafing through some of the more serious titles, such as *Dragon Update* and *68Microcosm*, unearths a wealth of knowledge. But it is often in a half page here and a whole page there, nuggets of wisdom gathered quickly before some other matter intervenes. And it's not hard to see why: getting even a simple idea ready for publication is time consuming work, and most Dragon writers are part-timers, fitting their contributions in when they can.

All the same, there is a temptation to address a small circle of user groups knowing that the nuggets will be accepted as they are, instead of taking the extra time and pain to beat them into shape for professional publication.

Dragon User calls on Dragon users with expertise: there is more interest than ever in programming and applications. Next time you have an idea, ask yourself if you can put it across to several thousand readers, and if you like the look of that, drop us a line.

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How to submit articles

The quality of the material we can publish in *Dragon User* each month will, to a very great extent depend on the quality of the discoveries that you can make with your Dragon. The Dragon computer was launched on to the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to *Dragon User* for publication should not be more than 3000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, whenever possible, be computer printed on plain white paper and be accompanied by a tape of the program.

We cannot guarantee to return every submitted article or program, so please keep a copy. If you want to have your program returned you must include a stamped addressed envelope.

Letters

Thanks Mum

I MUST say I was worried when DU went subscription only! It seemed the first step to scrapping the magazine altogether. But now four issues on it becomes clear that DU has been re-vitalised by the committment shown by Dragon users. The message is clear to Dragon suppliers — WE ARE STILL HERE AND WE WILL STILL SUPPORT YOU! So keep up the new game releases and user shows. YOU NEED US — WE NEED YOU!

Many thanks to all at DU for your continued support.

David Allen
25 Ironstone Close
Bream
Gloucs.

Hard bargain

THANK you from a DU reader of some three years standing. Our magazine is interesting, informative and motivating, a pity it isn't a weekly!

In recent issues there have been pleas from fellow readers for a hard copy service and as a contriubtion to the declared aims of DU I would like to offer such a service.

For the cost of materials I would be willing to supply listings, Pmode 4 screen dumps etc. on A3 or A4 paper to any reader in need. I can be contacted at any time on the above telephone number.

Stan Doig
3 Ferrard Road
Kirkaldy
Fife KY2 5RY
0592 200324

SOS-9

I CAN shed some light on Robert Hammond's plea in DU June 1986. OS9 is a disc operating system which replaced the built in DOS/Basic. It has several advantages, among which is multi tasking, ie you can sort, print, whatever, and still be able to use the rest of the machine's resources to do something else.

Now for my question. Where can I beg/borrow/steal or even purchase OS9 for the Dragon. I have OS9 for the Radio Shack CoCo and do like it, but how can I get it for the Dragon?

I have been checking all of the ads in DU for the past few months, and some of the advertisers mention OS9 utilities etc., but none of them say anything about the system itself.

I have the Dragon by Tano (made in the US) and a DragonDOS pack and disc drive (made in England).

I also have two R/S CoCos (No. 1 started as a 4k machine, and has since been expanded to 64k and the extended Basic chip from RS; No. 2 is a CoCo II, 64k extended), a multipack interface, RS DOS installed in a 'Di Stefano' Super Controller. I use the Dragon drives, have added an 80 track double sided drive, with 160 tracks/drive available, online storage can approach the smaller hard disc systems.

Thanks for any info.

Charles A. Davis
Route 1
Box 538
Sutherlin
Virginia 24594

EXTRA PUFF!

Now that the *Dragon User* People's Chart is no longer with us, we hope that the Letters Page will become the forum for games players as well as news, views and more serious topics.

Because of this, and to give everyone a chance, we will be shelling out a game or two to the most interesting letters we receive each month.

Send us your hi-scores and your top five too, and we'll keep a corner where keen games players can air their views and their achievements.

Many thanks to Microdeal, who have again agreed to supply prize programs for our star letters, as well as putting up the prizes for this month's Gordon Lee puzzle on page 30.

Grow up Dragons

EXTRA PUFF

Isn't is about time the Dragon grew up? Surely an internal enhancement could be produced to give the Dragon eight colours in its highest resolution, or even a higher resolution than at present for business programs and three channel sound, with a white noise channel for between the £20 and the £50 mark. Also, as an additional extra, an 80 x 24 text screen. This enhancement would have to be compatible with the Dragon 32 and 64 machines. This would make them more attractive than other machines in its price range, and would boost the 64 into the Home/Business market. The computers then would be very popular, becuase the 6809 is the most advanced 8-bit processor available, and is used extensively in the business and university sectors. This would attract the best programmers and give games a near arcade quality, as well as giving business programs a more functional quality.

I would be very interested to get some feedback on this subject, not only from Dragon owners, but from manufacturers. Maybe if enough interest could be shown, some enterprising company may actually produce such an add on at a reasonable price. I would like to read other readers' views on the subject.

Tony Saunders
44 Thornhill Road
Handsworth
Birmingham
B21 9BS

PS Could you please tell me where I could get a cheap 64 in exchange for a 32? Will Tandy OS-9 work on the Dragon?

Tandy OS-9 will not work on the Dragon without conversion, which is beyond the scope of this letters page. Dragon OS-9 is now more easily available (see DU February 1987). Dragon 64s are generally more valuable than 32s, but there may be someone reading this who has a cheap working Dragon 64 he wants to part with.

Going down hill

Long before your time as Editor, in January 1985, in the Dragon Open File a program was published called *Ski Run* by Michael Oliver of North Yorkshire.

Can you perhaps supply me with an original listing or a correction and the address of the author?

Terry Potter
The Grove
48 New Road
Chiseldon
Swindon
SN4 0LU

This is the chance to air your views — send your tips, compliments and complaints to Letters Page, *Dragon User*, 12-13 Little Newport Street, London WC2H 7PP.

Draught stopped

In the January issue of *Dragon User* you mention of problem with the Draughts program in *Enter the Dragon* . I have examined the listing and the fault seems to be in line 10120. Instead of ... 8, 126, 180, 244 ... it should read ... 8, 126, 140, 55 ...

Darryl Gove
154 The Avenue
Sunbury On Thames
Middlesex
TW16 5DZ

Bought out

I refer to Keith Gardner's letter (DU, January 1987) and the editor's note asking for comments about Cumana DOS. I bought a Cumana system a few months ago, and swiftly discovered the serious bugs that Keith refers to. In brief, data files are frequently not updated properly, or at all; and in some applications the complete disc can be corrupted. These faults have been properly documented by Mike Kerry of Grosvenor Software, and I suggest any other unfortunate experiencing problems with Cumana DOS contacts him.

Unable to obtain any answers from Cumana, I bought Grosvenor's SuperDOS, which I find totally error-free. In addition, Mike was kind enough to provide me with a two-byte patch for Smithson's Electronic Author, to fix a non-standard DIRectory call.

At last I have a trouble free system, no thanks to Cumana; maybe it is no coincidence that they are no longer producing Dragon controllers. Although I do not have any first hand experience of it, the controller produced by PNP Communications uses the SuperDOS ROM and should therefore be a good solution.

John Blatch
8 Bourneside Road
Addlestone
Weybridge
Surrey KT15 2HZ

Where's the DOS

First I would like to thank those programmers who contribute so many varied programs to DU (Pam D'Arcy, Brian Coadge, Peter Whittaker, Jason Orbaum etc.). Without these people writing programs for us, some people, including me, would not get their Dragons out!

Unfortunately, we are not all blessed with this programming ability, so while they think and invent, others just enter their hard work from listings. A big thank you one and all!

Now to other matters.

Can you tell me, if I was to buy a disc drive, would the DOS be included in the package, ie would it be plug-in-switch-on-and-go. I also noticed quite a few requests for printed listings. I have a Brother E.P 22 printer, and can print listings but not graphic material, and would like to set up such a service. Can you give me a few pointers?

One other things I would like to ask: could it be possible, with collaboration among programmers, to write a program along the lines of *Star Wars* with 3-D graphics, ie wire frames or coloured solids, with a view out of the cockpit weaving in and out of the obstacles. It would make a good game for inclusion in a Christmas DU. Or could somebody tell me if I am asking too much from a Dragon 32 or 64.

Incidentally well done *Dragon User*, you're keeping the Dragon alive.

S. R. Clayton
319 London Road
St. Leonards-on-Sea
East Sussex
TN37 6NE

The whereabouts of the DOS depends entirely on the printer. Some have a built in DOS, others are driven from a DOS on disc. As far as the Dragon in concerned, you are normally looking at a disc or computer-based ROM DOS. Peaksoft can give good advice on such things. Beware of buying from a *general* computer dealer a printer that you have not had a chance to try out with your machine — this tends to be a problem, as most dealers simply do not hold Dragon hardware.

Sprint wanted

Could you please ask the other readers of *Dragon User* if they have a spare set of instructions (original or photocopied) for *Sprint Basic Compiler* by Oasis Software, since I have lost mine. I would be willing to pay any expenses incurred. I have tried telephoning Oasis, but the line is dead, and I have been told they no longer exist.

Also, I am looking for some back issues of *Dragon User.* If anyone has May '83, June '83 or September '83 issues, and would like to sell them, then they can contact me at the address below.

Keith Hunt
11, Demarnham Close
West Bromwich
West Midlands
B70 6RJ

Stylo solution

I notice that there have been several appearances in Brian Cadge's 'Agony Column' of Stylograph and the dreaded double line feed. Brian's advice is to spool to s file and then print using Xmode. It does not appear to work, since the act of spooling itself produces another line feed!

Apart from a fix to Stylo itself, which no-one seems to have successfully hacked, a convenient answer lies in the mailmerge program. SImple save the text in the normal way and then use mm >file< /p with the modified mm program as follows:

Using Debug or a similar program, at offset $1920 replace the existing value of $0A by $00, you will then need to VERIFY the file to correct the cyclic redundance check, and use the ATTR command to give the file execute permission. That's all, but if anyone cannot manage this they can send me their copy of mm and I will correct it for them if they include return postage.

Also Stylograph itself can be changed to 80 columns for use with the Dragonplùs board by changing offset $14E3 to $4e and verifying as before.

I owe much of the above advice to the OS-9 User Group, whose address can be found in my article OS-9 Blues, which is published in this issue.

D. W. Rothery
1 Heath Road
Glossop
Derbyshire
SK13 9AY

Just one line...

I have had a few letters from people who have found the graphic data corrupted in *Counties Quiz* of many moons ago. After a careful search, I discovered that line 790 was missing. This must have been lost during printing.

The line is:

```
DRAW"BM 98,92U0U4HLG
HUEU3H3U3H2L3G2H2L2G
DGLHUEREULH2ULD2GD4
GHU3HL3GL2G4D2FGLDGL
D2R4FDG2LGLD2GL5GHL2
HL2HGLG2LDF2DGHLD2FR
3FG2D2GLGLFGFDERFDER
FGLDR2UR2UR2FR2UHUHL
HER2FORFD2F2DGL4GD2G
DGLG6UR2UR4FGL3DGL2F
GFGL4HG2DGRER5FG2L4D
GD2EFGFELR5FGLG2DRU2
RFRE2F2GLG"
```

Again, in my letter in November's *Dragon User* the added line should be 965, not 995. Buyers of the program need not worry!

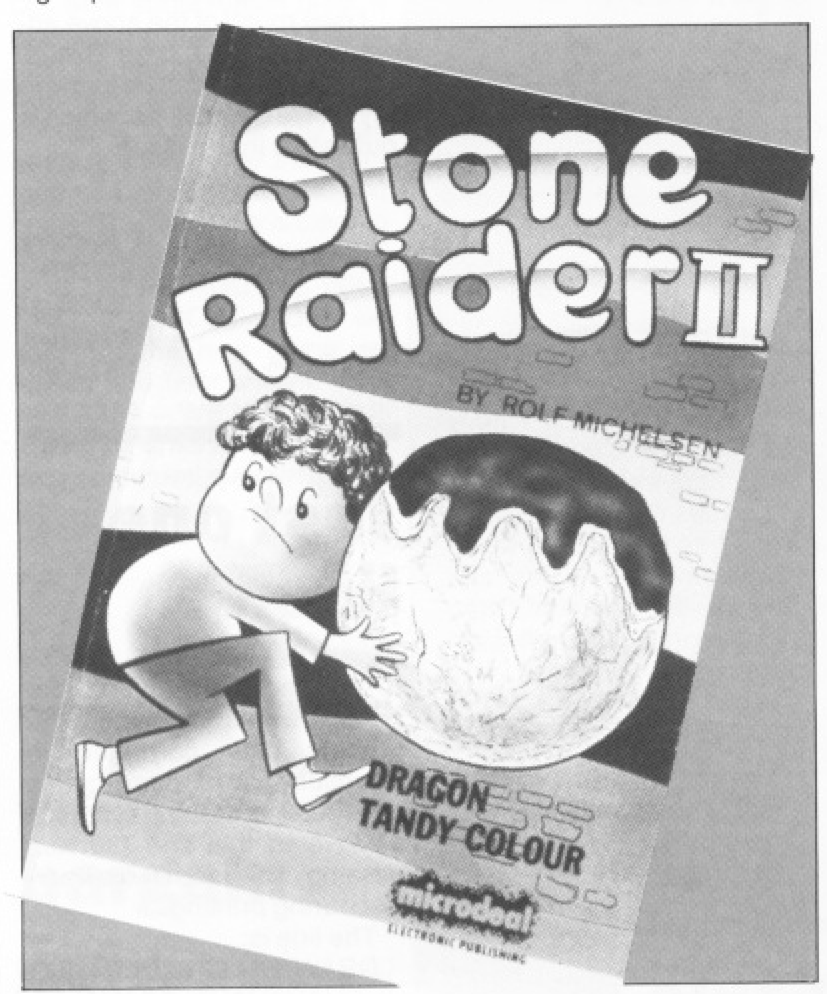
Justin Hewitt
Croft Soft
25 Hammonds Croft
Church Meadow
Hixon
Staffs
ST18 0PQ

EEE well, you can blame most things on 'printing', but that line wasn't on a join as far as we can tell, so unless the printer rubbed it out, we don't quite see. . .

News desk

Fewer Microdeals

MICRODEAL, still the biggest dealer in Dragon software, are planning to prune their list of Dragon games to combat rising duplication costs.



This will still leave around forty of Microdeal's most popular games available directly from the company, while as yet undisclosed moves are being made elsewhere to make older stock available from another source.

Says John Symes 'We are finding that demand for the older games, say older than two years, comes in ones and twos, so that we will either have to turn orders down or hold them for an unacceptably long time before we can duplicate a batch economically. Our list will be smaller, but we are still releasing new titles, such as *Stone Raider II*, which is out now, and *Air Ball*, coming shortly, and we will be going to the 6809 Show in March.'

'Someone has shown an interest in taking over our older stock, but nothing has been concluded yet.' A recent Microdeal success is *Tanglewood*, which has proved the most popular Dragon game for some months.

Bernd Knechtel steps forward

I have read the review of DST in the December issue of *Dragon User* but I do not want to despair at getting two dragons, I want to make a step forward!

But first let me correct two mistakes:

a) The price was £7 including p&p (to quote the old price list, 'Please add £2 for p&p except when ordering only DST.')

b) The sentence in the last chapter of the instructions about booting problems: I must have worded it badly. What I meant was that if you had worked with DST for some time and then spilled for example your cup of coffee on to the disc, in that case you should send £3 for a replacement disc. It goes without saying, I think, that if you get a damaged disc it will be replaced without any charge.

Now the step forward:

Because DST has not been very successful, I have decided that from now on:

a) Any Dragon group or club can get for £3 the licence and two master discs of DST (1.5 and .16) to produce copies for members.

b) For £5 anyone can get four discs, being two DST discs and two discs with all the DST source code (1.5 and 1.6) in Dskdream format. This is an interesting offer for a machine code programmer.

c) The disc versions of *Logo Extension* and *Equ-Checker and Com-Soft* are supplied with all the source code files in Dskdream, only for disc drives, but cassette owners can have a printout of the source code.

d) The programs in (c) are all £5, which is a reduction of up to 50%.

e) So, everyone who bought one of the programs mentioned in (c) and paid the full price can have one of the others free of charge. I have their names on record, and they should write and say which one they want.

f) Postage is a flat rate of £2.

g) I have two copies (about 160 sheets of paper) of the DragonDOS source code listing (with labels and comments) and I am willing to give them away free to the first two groups which buy the kit mentioned in (a).

Sincerely yours
Bernd Knechtel
Arnold-Wilhelm-Str.9
5630 Remscheid 11
West Germany

We reproduce this letter from Bernd Knechtel with many apologies for any embarrassment caused by the misunderstanding over his returns policy, and hope interested parties will take advantage of his special offers.

Sourcemaker update

THE initial release of *Sourcemaker* (User Guide dated 11 September 1986) was superceded by a new version dated 1 December 1986. The new version corrects errors in the original and includes an optional END ADDRESS for disassembly (the only 'weakness' mentioned in *Dragon User*'s review in the November edition). Purchasers of the September version who have not yet received a replacement copy should return the original *Sourcemaker* cassette with their name and address to: **Pammcomms Ltd., 21 Wycombe Lane, Wooburn Green, High Wycombe, Bucks HP10 0HD** for their updated version.

6809 in March

JENNY Pope, until recently well known as the public liaison for Microdeal, is now working independently, and she will be promoting the first independent 6809 Show at the Royal Horticultural Halls in Westminster, London on Saturday 28th March. Details should be appearing in a special announcement elsewhere in this issue. Information is also being sent out to Microdeal's mailing list, as before.

Scott of DOS Plus

Readers have been calling to find out where and how they can purchase DragonDOS Plus 2.3, which was reviewed in the February edition of *Dragon User*.

Copies (now up to edition 2.7) can be obtained from Phil Scott at 4 Badgerwood Drive, Frimley, Camberley, Surrey GU16 5UF, and the ROM costs £15, payable to P. G. Scott.

New show at Ossett

JOHN and Helen Penn of John Penn Discount Software are holding the next Dragon Computer Show at Ossett Town Hall, W. Yorkshire on Saturday 11th April. The show will run from 10am to 3pm, and the entrance fee will be £1 for adults and 50p for children.

The show will include Dragon retailers, and demonstrations by users. Says Helen 'We would like to hear from anyone who has an interesting idea or application for the Dragon and would like to do a demonstration on the day.' Contact JPD Software on Bordon (04203) 5970. Don't worry if you can't get through first time — there are a limited number of lines into that part of darkest Hampshire. Keep trying.

Three quick ones

QUICKBEAM Software have announced three new games, at the moment known only as *Super Kid*, *Metal on Metal*, and *Six-Aside-Soccer*.

We have the most detail on *Super Kid*, a new Wayne Smithson game, with four-channel music by Chris Jolly and colour graphics by Chris Warren.

The projected release date is April 1987, and we have no price details yet. (pic)

Longer life from Broomsoft

MICHAEL Edwards of Broomsoft has announced a new adventure, *The Immortal Strain*. The aim of the game, says Michael, is to become immortal. Has he solved this problem which has baffled mankind since Future Shock (lack of) was first discovered? Proffering the sum of £4.00 to Broomsoft at 30 Broomhill, Welwyn Garden City, Herts HL7 1RF will reveal all that he knows.

Information about Broomsoft's duplicated broadsheet *Dragon Magazine* can also be obtained from the above address for the price of a stamp. All the usual — games reviews, charts, news, pokes — in 12 issues a year are promised. Our sample has six A4 sheets with front and back cover, stapled at one corner, with smudgy but readable print.

NDUG

The latest edition of *Dragon Update* has just rolled up, and chairman Paul Grade is swamped with work and wants more help with answering the mail — sounds like he has my problem! P. Beed give *Dragon User* a thoughtful write-up. He's wise to the value of keeping old magazines on a specialist subject, and understands our problems in getting new information and assistance now that there are fewer users. There's a couple of short reviews, lots of general news and information, and some notes on disc drives from Paul.

Contact the National Dragon Users Group c/o Paul Grade, 6 Navarino Road, Worthing, Sussex for more information.

6809 Show Reports

SUPPORT MUCH NEEDED

SATURDAY 22 November 1986 was the day of the fourth 6809 Show. I arrived at the Royal Horticultural Halls at about 10.20 am, and was pleased and surprised to see a large queue accumulating outside the halls. SO the Dragon is still alive and kicking!

When I finally found my way inside, I was disappointed to find the hall rather bare compared with the last show I went to back in 1984. Some of the stalls looked like old school dinner tables, and at the least rather amateurish.

All the major names in the Dragon software and hardware industry were at the show, except Incentive, who seem to be pulling out of the Dragon scene after their hugely successful five star games, *Backtrack, Eddie Steady Go* and *Moon Cresta*. It is a great shame that the Dragon is loosing a great software house in these troubled times.

The drabness and emptiness of the hall did not take away my excitement, and in my frenzied state I *(I must explain that at this point the writer caused a terrible suspense by breaking off to insert a new piece of paper in his typewriter. What was he going to do next? Streak? Buy an ice lolly? Gun down the assembled crowd with a copy of* Fire Force....?*)* rushed round the stalls trying to find as many outstanding bargains and play as many games as possible. *(Ah! The usual! — Ed.)* This hyperactive state lasted about ten minutes, after which time I settled down and started to have a really thorough look at what was on offer.

Naturally I started on Microdeal, the giant of the Dragon software industry. They had six stalls out of the twenty at the show, proving how heavily the Dragon software industry still depends on Microdeal's support. The main stand which sold the lastest releases (*Tanglewood* and *Cuthbert and the Golden Chalice* etc.) was a hub of of the activity throughout my stay, showing that Microdeal is as popular as ever. I was disappointed to see only three games were set up to play on their stand, compared with the eight available at the second 6809 Show. These three were *Dig It* (a slightly more sophisticated version of *Mr. Dig, Tanglewood* and *Airball* (*Backtrack* with monsters, but at least I didn't have to wait ages to play them. The other Microdeal stands were selling their older and less popular games at bargain prices, together with Wintersoft and Salamander games.

Most people at the show must have left thinking Dave Hitchman of Quickbeam was deaf, as the A-Team theme tune was constantly blaring out at full blast — or was he trying to attract attention?! His small stand was constantly packed and it was hard to get within half a mile of the front. But when I did get there I saw the impressive *Fire Force* , and the perfect present for any games mad Dragon owner, five of Quickbeam's best selling games all wrapped up ready to be put under the Christmas tree.

Probably the most versatile company on show was Peaksoft. A few years ago they were software based, producing great games like *Champions* , but now they have hundreds of Dragon accessories ranging from joysticks for the games freak to disc drives and printers for the serious user. All of these were displayed at the show and many people benefitted from their bargain prices.

If I thought getting to the front of Quickbeam's stand was hard, finding the front of John Penn's was like climbing Mount Everest. He was offering over one hundred programs at amazinging low prices, and I for one lightened my wallet at his stand.

Grosvenor Software exhibited the full family of DREAM products — Text editor, DOSDREAM, SUPERDOS and the AX25 Packet Radio system by G4BMK for radio amateurs, and were always willing to answer any questions.

Computape seemed to be having a running price war with its arch rival John Penn — this ensured the bargain hunters rich pickings, and I would be surprised if anyone left the show without buying a game from one of these two companies!

There were two user groups represented at the show, the OS-9 User Group and the National Dragon User Group, offering special software deals, repairs done at cost, and a magazine at a price!

From the point of view of the companies exhbiting, it was a fairly successful day, as, though attendancies were down from the previous year, the drop was not as bad as had been feared and most people who came were interested in buying, not just window shopping and playing the games as in some years.

Even though the show lacked the professional touch of previous years, I had a very enjoyable day and look forward to many more such shows, but I fear unless Dragon owners offer more support by coming to these shows, the life blood which the shows provide will be lost. So support your computer, and all of you execute your duty and attend the next one. If you don't do this, then don't blame me if the Dragon dies.

Tim Wilkins

LIVELY AND LOTS OF BARGAINS

AS Christmas drew near, so the pennies were drawn out of Dragon users' pockets in the midst of the 6809 Show. November 22 was the date and the Royal Horticultural Halls once again the venue. Even more new products were displayed at the November show and the range of Dragon software increased once again.

Quickbeam, now filled with confidence, boldly displayed *Fire Force* on their stand directly opposite the entrance. Just as proudly, Wayne Smithson showed off his recently completed *Frankie* with all its hundred screens, still the product of an independent software house. John Penn spread the usual mountain of bargains across his stand, and Microdeal appeared to be flogging two year old editions of 'Cuthbert's Chronicle' across the way. Software was also abundant on Microdeal's other stand, but few new releases appeared, and demonstrations were nonexistant, unlike previous shows. Still on the subject of software, there was plenty available for Tandy users, for virtually all the current Dragon/Tandy conversions were neatly laid out on a budget software stand. Apart from Salamander's usual range, there was nothing more to be found in the way of entertainment software.

The full power of the Dragon was unleashed in other areas, and Harris Micro Software game demos of all their business titles. A very impressive and useful range of disc programs has now been built up by this company. I had to push my way to the Compusense stand, as they were cutting down on their stocks of boxed Dragon 32s (working), getting rid of them at £25 a time. Although Compusense were showing an IBM PC compatible Dragon board for the first time and the Dragonplus expansion, by far their best seller was the old 32.

Lively was the Grosvenor stand also, with a fair trade being done in Dragon disc systems. The bustle of the show continued for several hours and this time it was certainly no quieter than on previous occasions, and all in all many bargains were to be found for Santa's sleigh.

Hedley Emsley

RELAXED AND FRIENDLY

THE day arrived and we all got up early (for a Saturday) and piled into the car. We were off to the Show of the Year, the 6809 Show at the Royal Horticultural Halls in London. The three boys had been looking forward to it for months. I, having been to all the others, was not sure I wanted to go at all. My wife refused to go. She hates computers, and blames them for everything *(Quite right — Ed.)*. So there we were, hurtling at breakneck speed up the motorway, trying desperately to get to the show in time for the doors opening at 10.00am. I elbowed and shoved my way through the morning traffic to arrive at 10.15 and find A QUEUE. I checked my *Dragon User*. 'Doors open 10.30.' Oops!

Having bought our tickets in advance we were in the hall in a trice. The boys and I parted company, as they wanted to see what games were on special offer, and I wanted to check out operating systems and modems, etc. First stop was at the Grosvenor Software to have a SuperDOS fitted to my Cumana cartridge, a worthwhile investment, if only to obtain updated information on the screen instead of just repeating what was already in the buffer. This item seemed to be generating a large degree of interest (hardly surprising, considering the standard of DragonDOS).

Next came the Compusense stand, with not a lot on show but plenty of information available. Canadian Dragons were on sale, but only useful of those with NTSC (the American TV standard) monitors. It was here that I learned that Cumana intended to stop production of DOS cartidges for the Dragon. This is bad news for some, but I am sure PNP Communications and Grosvenor Software will not be losing a great deal of sleep over it since they will be sole suppliers. I got the feeling that Compusense believe the market for the Dragon is slowly dying, and while they will do nothing to accelerate the process, they are turning their energies in other directions, particularly IBM clones, and hoping eventually to take loyal Dragon users with them. If my finances ever run that far, I would feel more comfortable knowing that Compusense were involved.

Wayne Smithson showed that he was on the ball when he told the very slight conversion necessary to run his *Electronic Author* on SuperDOS. I was a little surprised to find no demonstration of his new game *Frankie* anywhere. Blaby were selling their complete range of games at even lower prices. I shall be sorry to see them pull out of Dragon software, but they have their living to make and the games market in general is shrinking. John Penn was displaying a vast range of cheap software, and said that he can get the OS-9 operating system via Hans Christian Anderson in Denmark. I thought he was a fairy tale, but John assures me that he really does exist, and is a reliable source of supply.

Harris Software were demonstrating *Basic 42*, and on the monitor it looked so good that I bought a copy. The system works well but has a slight problem with converting all inputs into upper case. However, there is a simple way round this problem, which Bob Harris will tell you if you drop him a line.

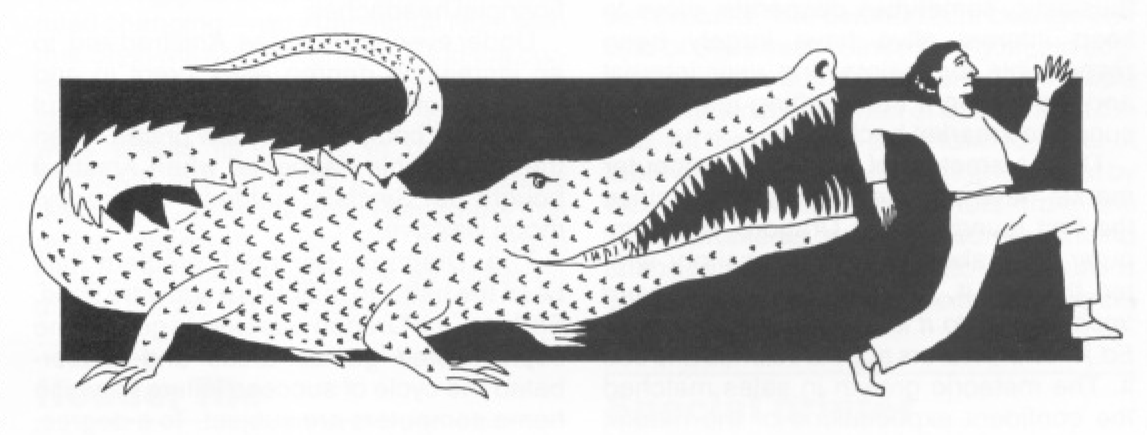
No visit to the show could be complete without a visit to the Microdeal stand. They are the organisers of the show, and usually the stand you have to fight to get to. Well, it was busy as usual, but access was easy and service was quick. Gone were the hoards pawing over the bargain games, gone were the display units belting out their music and white noise, making it almost necessary to have ear defenders. The result was far more pleasant, and made it possible to thoroughly peruse the many bargains available. It was here that I was reunited with my sons. Microdeal had thoughtfully provided back numbers of the Cuthbert Chronicles, in one of which was a list of games that would run equally well on the Dragon and Tandy machines. The boys were using this list to play one off against the other. If the Tandy game was cheaper they got that one, and vice versa.

The only people actually demonstrating their games were Quickbeam. Their stand was much like last year's, *Fire Force* having replaced *Shaolin Master* on the screen. For spares and accessories, Peaksoft's stall was the place to be. They had keyboards, power supplies. cables and joysticks, etc. On the software front they were selling amongst others *Adventure Writer*, an operating environment that makes it easier to plan out your adventure. It came in a plain brown envelope and contained everything, except the original idea, that you need to write your own adventure.

I enjoyed the show immensely as did the three lads. The relaxed atmosphere was fantastic and everyone was so friendly. However, I would have liked to see another six to ten exhibitors — it is nicer without the crowds, but that might not have been my feeling if I were the organiser. As the show was only on for one day, I expected it to be bursting at the seams, but it was not. I hope this is not the last 6809 show. We need something to bring Dragon enthusiasts and suppliers together.

To end on a brighter note, at the last show I was looking and asking for a tape to disc converter and a disc based Forth compiler. This year I was able to buy *Duplicdisc 2* from Quickbeam and the Forth O/S from the National Dragon User Group. So if you ahve a particular requirement, ask for it. If enough people ask for something, someone will make one. This year, by the way, I wanted a modem.

Ken G. Smith



BETTER BUT A BIT BARE

WHEN I arrived there were long queues at the doors stretching around the building, and I waited 15 minutes to buy my ticket. Once inside the hall, it looked a bit bare; there were only about twenty stands, but the hall soon filled with people. Microdeal were showing off their new games, *Tanglewood* and *Wizard's Quest*, which were selling like hot cakes. They also had *Air Ball* and *Stone Raider II* which were 'coming soon'. *Stone Raider* is a *Boulder Dash* type game, and *Air Ball* is a follow up to *Wizard's Quest* , and both looked very good. Other games selling well were *Fire Force* from Quickbeam and most of Blaby's range. Hardware-wise, Compusense were selling their Race products at very low prices (the RS232 port for only £25) plus all their usual stuff. Grosvenor's SuperDOS was being snapped up and they were also showing RTTY in the hall, with an enormous aerial going up to the roof.

I heard some gossip that Microdeal might be putting some Dragon stuff on their Bulletin Board, and that they only need another 500 people in their Day 1 Club to keep up Dragon software support. Also, Harry Whitehouse of Peaksoft told me that he might be rejoining Prestel after their dispute about payment.

Other things at the show were a program to turn your little Dragon into a proper music synthesiser (which sounded good), an auto dialler for the phone by the National Dragon User's Group (for people with very lazy fingers) and loads of discount software. After 12 the Show quietened down, and I had to leave to catch a train, so if after 12 a bomb went off, I'm sorry I haven't reported it *(Not as far as we know — Ed.)*. I enjoyed the show, it was better than the last few years, but there wasn't quite enough there to last all day.

Ian Napier

Saving Grace

***Rod Bushell** looks at the Dragon under seige, and finds that it is not alone with its problems*

TO THE dismay of many, but the surprise of few, another link was added to the chain of adversity which binds the Dragon when Dragon User removed itself from the open market and went subscription only. How many users looked upon this as the first step down the road from which there is no return? Like it or not, there is an element of surrender in being forced into such a position.

The very fact that Dragons are still roaming says a lot for the resiliance of the species. The machine has stayed active through buy-outs and bankruptcies; through uneven software supply; and though general critical and public dismissal following the closure of Dragon Data.

Dragon owners are used to the vicissitudes of the unfashionable end of the home computer market. Many micros have sunk without trace, yet the Dragon has contrived to retain an active user base and software. The efforts of Dragon User magazine have greatly contributed to the continuing provision of facilities for the Dragon. Its enthusiastic, sometimes desperate, ploys to keep interest alive have largely been responsible for maintaining user interest and preventing it from drifting into an unsupported market backwater.

The parameters of the home computer market have changed considerably since the first launch of the Dragon. The computer boom always had the 'transitory' written through it, although *(It had the word 'money' next to it in much larger letters — Ed.)* manufacturers appeared unable to see it. The meteoric growth in sales matched the confident expectations of the market analysts. The individual user market was buoyant to such a degree that it was seen as the modern license to print money.

One small point was overlooked: individual users are qualitatively different creatures from the business or professional user. This means that there will always be a limit to the number of sales and that the market has definite boundaries. The number can be large, but it fails to take account of the high fall-off in home sales. Business users keep computers in near permanent operation, and of necessity update software or hardware more often. The home user wants a long-term, reliable, flexible machine which won't needs expensive updates. Unfortunately, most purchasers did not know what their choice was capable of, nor did they envisage the future trends in the home computer industry. They were not alone: most of the industry didn't, either.

But how many machines ended their days in the loft as their owners despaired of mastering the intricacies of programming, got bored with the games or generally lost interest? Of those who persevered, how many were sufficiently enamoured of the new technology to upgrade on a regular basis? Come to that, how many manufacturers offered significant upgrades of their products?

Almost all the major computer manufacturers experienced problems with excess stocks, slow sales and abortive product launches. Many producers have effectively stood still over the last few years.

Sinclair ventured into the realms of the QL and MSX, diversified even further with the C5 and FST, found time to tart up the old Spectrum and then brought out its big brother, the Spectrum 128. But Sinclair made too many mistakes, and lost the momentum of its product development. Commodore had similar troubles with the Plus 4, and the 128 and Amiga disappointed many expectations with their high prices. Just to add to their problems, Commodore suffered a well documented world wide slide in profitability and only just stayed in business. Their latest hope is a rejuvenation of the 64 with the 64c. Acorn, on the other hand, beavered away at its R & D programme to very little effect, and big financial headaches.

Under everyone's noses, Amstrad and, to an increasing degree Atari, crept in and started offering complete, powerful systems at comparatively low prices. Then the unthinkable happened when Amstrad bought out Sinclair; suddenly the honeymoon was over.

The Dragon's personal problem has been the battle to maintain a software base. Early on, the Dragon was slow to get into the sophisticated games areas and exacerbated the cycle of success/failure to which home computers are subject. To a degree, the success of hardware is determined by the amount and quality of software available. Equally many software producers wish to satisfy themselves as to the marketability of hardware before committing a software effort to it.

The demise of Dragon Data provoked an immediate downturn in support for the machine. The reaction from many software houses was predictable; at that time, with many more models on the market, any hint of financial trouble was enough to frighten away software producers. The famous crash of Imagine Software proved that noone was immune.

When sales support for Dragon software was withdrawn by a well-known High Street outlet, the game seemed to be over. But a few houses continued to feed the Dragon. Some were so heavily involved that pulling out could have lead to collapse. On the other hand, the Dragon in its heyday enjoyed good sales figures, so there are a fair number lurking out there. If the sales base held, there was an opportunity for guaranteed, if not spectacular, sales. After all, where else could Dragon owners turn?

So, while the Dragon owner is not deluged with new software, there are enough quality releases to keep users involved. The main regret is that the number of conversions of classic games or utilities on other machines seems to have dried up.

Where does this leave the average Dragon user? Until recently the position was more positive than anyone would have suggested a couple of years back. Good quality software came in just about sufficient quantities; peripherals were produced and Dragon User was still in the shops.

However, the situation is not stable; the perennial fear is that of the Domino Theory coming in to play; if one pulls out, then a whole succession of market withdrawals may follow. This instability causes uncertainty for the owner; how many have succumbed to the temptation to ditch their Dragon in favour of a better supported machine?

The uncertainty can be seen in the advertising efforts of software houses. Fewer are advertising, and those that do are selling old stock, or don't advertise so often.

The subscription-only policy of Dragon User cannot help but affect the morale of Dragon users. To have their main magazine removed from the public eye signifies another retreat. If the supply lines were ever to be cut, then Dragon users would be in real trouble.

As computing makes strides in complexity,the Dragon lives on as an anachronism, responsive and versatile, but outdated. But considering how greatly computing has changed since its launch, consider what may happen in the next span of time, and how many other famous names, past and future, will then be in the same position!

The Dragon seems doomed to follow its gentle downward path. It is frustrating to think that much of the future of the machine will lie outside the influence of individuals. Users will maintain a network through clubs and bulletin boards, but for how long? All we can do is to support our chosen manufacturers and hope they continue to support our chosen machine. Already the Dragon has stayed around longer than many people predicted. That the Dragon has lasted so long is a tribute in itself.

The home computer market will see another leap forward, probably from Amstrad. The Dragon will get left further and further behind. But who knows, the whole bubble might burst! As long as the Dragon can hold its present position, there will be incentive for some software production. Maybe Dragon owners should shout a bit louder to get noticed.

The clouds never seem to be far from the Dragon's horizon, but then Dragon owners are used to adversity. They're also used to sticking together, and that might be the saving grace.

OS-9 Blues

***David Rothery** demonstrates how to get the most out of OS-9 Stylograph.*

NOW that OS-9 has been adopted as the basis of the European Education Standard microcomputer system, and by Sony/ Phillips for the laserdisc system, its future seem assured. In addition, Tandy's Colour Computer 3 runs OS-9 level 2, and H.C. Andersen (of Denmark, where else?) distributes OS-9 software especially for the Dragon. All of which means there should be plenty of software around. If you have taken the plunge, and bought the operating system, or if you are to do so in the future, the following notes should be of help. Some of the information has appeared before, and I rely partly on information gleaned from others , but it will be useful to have it all in one place.

The very fact that OS-9 is such a versatile system means that it can be confusing to the newcomer, and what might seem obvious to the manual writer is not so clear to the raw user. However, once mastered it offers possiblities and standards of software far beyond what you would expect in a home computer. I will concentrate mainly on the word processor, Stylograph, since this is the lynchpin of the system, and will be the program used by most serious users. However, to judge by letters in *Dragon User* and elsewhere, it seems to cause most problems. Some of the advice given here applies also to other programs.

Despite the problems, Stylograph is an incredibly useful and reliable word processor, and one of the strengths of OS-9 is that, once mastered, Stylo can produce not only documents and mail shots (with spelling checked by a 42000 word dictionary!) but is equally at home writing the source code for programs in C, Pascal, assembly language or even Basic.

Execution and data directories

One of the most useful features of OS-9, and the most confusing to the beginner, is the existence of these two 'home' directories (Unix only has one). Providing you set these up correctly before accessing your discs it is not necessary to give a full pathname when giving commands. The first directory is automatically set to the CMDS directory of the system disc when you initially BOOT up, but when this is changed for the Stylo disc you must use

chx /d0/cmds

before Stylo can be accessed. If you have only one disc drive then

chd /d0

will store your letter files on the same disc, otherwise place a blank formatted disc in drive 1 and use

chd /d1.

Note that the first command in OS-9 refers to the execution directory, and the second to a file in the data directory. Think of the first as what you do, the second as the file you do it to, for example

'Del file1'

finds the delete command in /d0/CMDS and deletes file1 in /d1.

Note that a command cannot be executed unless that command is in the execution directory. It is no use trying to find what is on a disc by typing 'DIR /d0' unless DIR is one of the files on disc d0! That is why the Stylo disc duplicates a few utilities from the system disc — if these are removed or Stylo is copied to another disc and you have only one drive then the only way to find what is on the disc is to LOAD DIR from your system disc into memory first. If you forget this then you will get a 'no access permission' error message, which probably leads you wrongly to suspect the file attributes need changing —very unhelpful! Note also that Stylo will not load unless it is in the current execution directory (/d0/cmds/stylo will not work) and some features of Stylo will not work unless its disc is in drive 0 and RENAME and DELETE are on the same disc in the CMDS directory. Remember that unlike microsoft basic on the normal Dragon all commands must be either on disc or loaded into memory by you.

Header file

I always have a 'Header' file on my data disc (prepared by Stylo) which contains my address and telephone number together with the codes for setting up my printer. Suppose the code to get the printer into correspondence characters is 27,18 then simply include:

",pc /
/27,18/"
and all will be well.

Another tip — include:

",mmc :"

and place :DATE: in the correct position on your header. Now when you call Stylo use the command:

STYLO # 15k Header Letter

This will load your header along with Stylo, and after you have written the rest of your letter will automatically save it with the filename of 'letter'. The £15k will reserve as much space as possible for your text. If instead of printing the letter direct from Stylo you return to OS-9 and use:

MM letter)/p

the correct date will automatically be inserted in the letter whenever you decide to print it.

The dreaded Linefeed Syndrome

The $64000 question which is always being asked is "How do I stop Stylo doing double linefeeds with my printer?"At the end of each line of text it sends two codes, -$OD which is a carriage return and $OA which is a linefeed. Unfortunately most dot matrix and modern daisywheel printers give an automatic linefeed whenever they are sent the code for a carriage return ($OD). Hence the double linefeed! Many cures have been suggested — spool the text to a file and then print it, use the Xmode command, use the proportional spacing table — none of which work. Special assembly language filters have been written to remove the linefeed code but these are fiddly to use. Now it can be revealed! The solution is to change one byte of Stylo itself. Since I am going to suggest quite a few changes during this article I will explain the method of doing this at the end. All the changes are shown together in **table one**.. The linefeed code is replaced by OO. Since Mailmerge suffers from the same problems as Stylo, corresponding changes are shown for this. This cure is complete and does not affect the program in any other way.

Special printer characters

Another crie de coeur frequently heard is 'How do I use special characters such as the £ sign since my printer needs these to be accessed as codes above 128?' Another of Stylo's winning ways is to mask bit 7 of all codes sent to the printer. This is to avoid graphics characters being printed by mistake, and subtracts 127 from all codes above this value. However, it can be a bit of a pain (correction: a lot of a pain!) and the masking can be removed by replacing $7F by $FF in two places in each program.

Special printer features

Stylo has special control codes to allow underlines etc. to be used. These are intended for business type daisywheels and work by backspacing and double printing. If you have a dot matrix printer you may still be lucky. Using the Stylo command to specify a P20 type printer, my Tandy DMP 110 works perfectly on underline, subscripts and superscripts when in 'word processing mode'. This is because $OF is sent before each letter in underline mode, and $OE

after the last one. These coincide with the Tandy codes for 'start underline' and 'end underline'. The redundant $OFs are ignored. **Table two** shows the codes sent for each feature. These may well either be correct for your printer or the incorrect ones may be ignored. If in doubt try it! Overline and bold are most unlikely to work on DM printers. If you have no success there is another alternative. If you send me your printer codes for underline, subscript, superscript and bold I will send you a tailor-made assembly language filter to solve the problem — see later.

Proportional spacing

The command in the margin: ,PS is intended to allow proportional spacing on daisywheel printers having this facility. The correct STYPS file must be on your disc. Note that if your DM printer has proportional spacing the STYPS tables are not necessary, and you should simply send the correct printer control codes in the usual way. Stylo will not right justify proportional spaced text even on a daisywheel, so there is not point in fiddling about!

80 column screen

If you are lucky enough to have DragonPlus, or an 80 column terminal, the appropriate change to adapt the program is shown in **Table one**.

Customising your keyboard

I, for one, prefer using arrow keys to move my cursor instead of the i,j,k,l,m keys etc. as used by Stylo. **Table three** shows all the modifications which can be made. The suggested changes should be carefully considered; before changing to something else make sure that key has not already been used, and remember that the arrow key codes are duplicated by other key combinations. the up arrow is the same as Control L, down arrow as control J, left arrow as control H, right arrow as control I, BREAK as control E, etc.

Check the rest with your User's Guide.

If you do make changes to the control keys then you should make appropriate adjustments to the STYHLP files which are called when you press control A. To do this, simple load them into Stylo and edit them like a normal text file.

Problems with the spelling checker

This is a most useful utility since, even if you are a good speller, you can type quickly knowing that 'Tryping mitsakes' can be spotted quickly and easily afterwards. The only problem seems to be that there is a supplementary dictionary to which you can automatically add specialised words such as legal terms if you happen to be a lawyer. Vivaway, who made up the discs for Dragon Data, in their wisdom supplied a blank supplementary dictionary file. This causes SPELL to crash when it accesses the empty file. The cure is simple: just delete the supplementary dictionary, and SPELL will make its own when required. If you share my dislike of Americanised spellings you will occasionally be irritated when SPELL rejects words like 'tyre' in favour of 'tire', and of course SPELL cannot correct grammatical errors or that regular mistake of *Dragon User* contributors of forgetting that the only meaning if 'it's' is an abbreviation of 'it is'! *(He's a brave man, this Rothery. — Ed.)*

Finally as regards STYLO, I use it so much I have given it its own bootable disc, using the COBBLER command. I have included on this a new STARTUP file which includes the following lines:

```
chd /d1

Display ----- >/p (where ----- contains the codes to set up my printer correctly)

Stylo #15k Header Letter >/term>
```

This makes STYLO read and write to drive one, although it does not permanently change the data directory. It then sets up the printer (make sure it is on!) and loads STYLO correctly. Don't forget the >/term command or your keyboard will go dead!

Record management

This system may seem a bit clumsy to set up, but is very convenient in use. However, there are errors in the manual. On page 28 the method of specifying a report file from the keyboard using X >Prompt; is wrong. You should use X/TERM>Keyfield; where keyfield is the RMS.dic keyfield. A prompt does NOT appear on the screen. Also the sort algorithm on page 43 is wrong. Eight lines from the bottom should read "N = N+C-$20". Note that multiple sorts on more than one keyfields are not possible directly from RMS, but can be done by loading the file into DYNACALC and using its sorting facilities.

General notes

I have included in **Table one** some 80 column changes etc. for other OS-9 programs. Note that a few programs create a 'scratch file' in the current data directory while working, which is deleted if the program is properly exited. Thus, if the C compiler or Edit give a 'file already exists' error when they start work it may be that the scratch file was not deleted last time you used it. Also the C compiler requires the ECHO utility to be in the CMDS directory or you will get errors thrown up all over the place.

Don't forget when using BASIC09 that although there is no CLS command, there is a useful set of codes given in supplement C of the 'operating system user guide', page C2. These enable you to clear the screen and give a considerable amount of control to the cursor. Even more extensive controls are available in the 51 character mode, allowing underlining on screen, reverse field etc. These are shown on page E2 but are often forgotton. To use them just include DISPLAY when in OS-9 mode followed by the appropriate code. The lack of an INKEY$ command can be remedied by assembling the INKEY sourcefile given at the end of the BASIC09 manual. I have an assembled version for anyone who is stuck.

If you wish to use the DUMP command to examine a whole disc, rather than a file then DUMP /D1 will not work. However, whole discs are designated as @/D1 or @/D0, so the command DUMP @/D1 will do the job. If a disc of files has been altered so much that the disc space has been fragmented you can regain a lot of memory by using the DSAVE command to copy them neatly on to a new disc. It is not necessary to create a text file as in the manual. Simply use LOAD DSAVE COPY MAKDIR TMODE. Now replace your system disc in D0 with the disc to be copied, and put a new formatted disc in drive 1. Use DSAVE -S20 /D0 /D1 ! SHELL. The -S20 command speeds up the process by reserving more memory, and the ! pipes the output of DSAVE directly to the system, just as if a series of commands had come from the keyboard to copy each file. Also do not forget that if you ever need to repeat a command in OS-9, such as when copying several discs with DSAVE, you do not need to type it in again. Simply press control A.

To change a byte

I will give as an example the first change in **Table one**. Use the DBUG command of the Editor/Assembler package.

1) DEBUG #2k (Loads debug)
2) $LOAD /D1/STYLO (Loads Stylo)
3) L STYLO (Links stylo to debug)

Debug will now print out something like this:

```
4000 87
```

This means the first byte of Stylo is in memory at position $4000, and the value of this byte is $87.

4) . 7F52 (Set 'dot' ie current memory address, to 4000 + 3F52. The current value of this address, OA, will be displayed)
5) . = 00 (Changes 0A to 00)
6) Make any further changes the same way.
7) Q (Quit debug)
8) SAVE STYLO /D1/STYLO.mod

Unfortunately you have not finished, as the CRC check will now be wrong since you have tampered with the program. So:

9) VERIFY u >D1/STYLO.mod >D1/STYLO (This updates the CRC on the new STYLO file)
10) ATTR /D1/STYLO e pe (This sets the execute attributes which are for some reason deleted by VERIFY)

You can now copy your new STYLO into the CMDS directory of your Stylograph disc.

If you do not possess an assembler, or all this sounds too complicated, I am willing to modify any program for you. If you wish to take advantage of this, or any other service I have mentioned in this article, then all I ask is:

- That if you wish me to modify a copyright program you enclose the original (after making a backup, of course).
- That you make your wishes clear.

That you either enclose a blank disc and return postage or include £2 to cover this.

- That you enclose £3 nominal fee to cover at least some of the time involved, to: D.W. Rothery, 1 Heath Rd., Glossop, Derbyshire SK13 9AY I would strongly recommend anyone using OS-0 to join the OS-9 User Group, which distributes a disc full of ideas, letters and programs each month. The address is **Martin Vernon, 4 Roseberry Court, Llandudno, Gwynedd LL30 1TF.**

OS-9 RULES! O.K.

Table 1 – Linefeed and screen width modifications

Offset	Normal value	Change to	Comments
STYLOGRAPH			
3F52	0A	00	Eliminates linefeed
4FA0	7F	FF	Allows control codes above 127
5060	7F	FF	Needed as well as above change
14E3	31	4E	Gives 80 column width
MAILMERGE			
1920	0A	00	Eliminates linefeed
1DE0	7F	FF	Allows print characters over 127
1E94	7F	FF	Needed as well as above
DYNACALC			
The changes shown must be made to DYNACALC.TRM not Dynacalc itself. Since DYNACALC.TRM cannot be loaded as a memory module a disc zap program will be needed. Do not verify after changing it.			
010D	18	18	Screen depth
010E	32	50	Screen width

RMS
Read file RMS.TRM into Stylo.
Alter the first two numbers to the new screen depth and width respectively.
e.g. 18 followed by 50 for a 24x80 screen (remember numbers are hex)
Save new file as RMS.TRM after deleting old version.

Table 2 – Hex codes sent by Stylo to P20 printer

Underline mode: 0F before each character, 0E at end.

Overline mode: 0E before each character, 0E at end

Superscript: 1B,1E,0E before text, 1B,1C,1B,1E,0E in between each,1B,1C,0E at end.

Subscript: 1B,1C,0E before text, 1B.1E,1B,1C,0E in between each, and also at end.

Boldface: 0E before each character.

Proportional space set: 1B,11,0E before text, 1B,13,0E at end of prop.spaced text.

Table 3 – Stylo control key modifications

Offset	Normal value		Suggested value		Function
* Escape mode controls					
04A3	'I'	49	UP ARROW	0C	cursor up
04A4	'L'	4C	RIGHT ARR	09	cursor right
04A5	','	2C	DOWN ARR	0A	cursor down
04A6	'J'	4A	LEFT ARR	08	cursor left
04A7	'U'	55	CNTL UP ARR	13	Scroll up
04A8	'M'	4D	CNTL DN ARR	12	Scroll down
04A9	'F'	46	Leave as before		Find
04AA	'R'	52	Leave		Replace
04AB	';'	3B	Leave		Insert
04AC	'W'	57	Leave		Withdraw
04AD	'Z'	5A	Leave		Zap
04AE	'S'	53	Leave		Save
04AF	'/'	2F	Leave		Supervisor
04B0	'D'	44	Leave		Duplicate
04B1	'O'	4F	SHFT UP ARR	1C	Screen up
04B2	'.'	2E	SHFT DN ARR	1A	Screen down
04B3	'K'	4B	Leave		Cursor left/right
04B4	'P'	50	Leave		Page number
04B5	'}'	7D	Leave		Insert Marker
04B6	CONTROL D	04	CNTL C	03	Delete character
04B7	-		?		
04B8	'7'	37	CNT LFT ARR	10	Scroll left
04B9	'9'	39	CNT RT ARR	11	Scroll right
04BA	'1'	31	Leave		Overwrite one char.
04BB	'^'	0C	'I'	49	Insert one character
* Insert mode controls					
04BC	CONTROL U	15	CNTL $	1D	Underline
04BD	CONT O	0F	Leave		Overline
04BE	CONT B	02	Leave		Boldface
04BF	CONT I	09	CNTL *	00	Superscript
04C0	CONT K	0B	Leave		Subscript
04C1	CONT Z	1A	CNTL U	15	Unmod
04C2	SPACE	20	Leave		Space Character
04C3	LEFT ARROW	08	Leave		Backspace
04C4	SHFT L ARR	18	CNTL D	04	Delete line
04C5	CONT D	04	CNTL C	03	Delete character
04C6	CONT W	17	Leave		Delete word
04C7	CONT F	06	Leave		Format display
04C8	CONT N	0E	Leave		Name Error
04C9	CONT V	16	CNTL M	0D	View mods
04CA	CONT P	10	CNTL V	16	Page status
04CB	CONT G	07	Leave		Ghost hyphen
04CC	CONT R	12	SHFT RT ARR	19	Set tab
04CD	CONT Y	19	SHFT LFT AR	18	Clear tab
04CE	CONT 0	1F	Leave		Caps Lock
04CF	CONT A	01	Leave		Help
04D0	CONT BREAK	1B	Leave		Exit insert mode
04D1	CONT T	14	Leave		Tab

****

New software for review should be sent to *Dragon User*, 12-13 Little Newport Street, London WC2H 7PP.

In the firing line

Program: *Fireforce*
Supplier: Quickbeam
Price: £9.95

DAY ONE: I can hardly believe it, that just five days ago I was making my living as a humble accountant in Baker Street, and now I find myself in a war zone, against several hundred thousand troops, planning to steal a plane and fly it out. They've explained it all to me. Colonel 'Ball Breaker' Hitcheens has told me it's easy. "Stage one is the approach, stage two is the final approach, and stage three is simply flying the plane out." Still, I can't help but worry, something seems to be wrong.

DAY TWO: something seems to be very wrong. My gun appears to have three blanks in every four bullets, I mean, I keep shooting at the men, but even when I hit them, they don't die. Colonel Hitcheens told me to "Stop being such a namby pamby girl Orbaum, just admire the great uniforms the others are wearing." But still I feel uneasy about my chances of success.

DAY THREE: something is very wrong. I've just tried to run past a tree only to get stuck there, with no way to pass it or to go sideways, and no option to turn back. Oh my god, I can see Jerry coming now, I've radioed Colonel Hitcheens but he just said "Ha, ha, ha, caught another one" and dissolved into maniacal laughter. Well, it looks like I've had it. Tell Laura I love her. War is hell.

(These were the last coherent words of Private Orbaum. From the next few blood stained pages of his diary, the following words were gleaned: Great graphics, great sound, completely bug ridden, too hard, too unfair.)

Jason Orbaum

When we recieved it, we felt that Jason Orbaum's review was sufficiently controversial that it was only right that Quickbeam should have a chance to reply to it on the spot. Dave Hitchman of Quickbeam thought so too, and his reply follows. We will only add that to us the game looked good, sounded good and was tricky to play; how a games player copes with a game of this type depends on his or her attitude to gaming. We won't add anything further at this stage, becuase it would involve an essay on games playing which is out of place here, but we would like to here the opinions of other readers who have loved or hated the game.

– Editor

Dear Editor,

Thank you for passing on your reviewer's comments about our game *Fire Force* to me.

I feel that the review is very inaccurate, and that, since you intend to publish it, I must insist that you print this letter alongside your review.

I will begin by bringing your attention to Mr. Orbaum's inaccuracies:

a) *"My gun appears to have three blanks in every four bullets".*

This is not correct. Although it may appear that the bullets have hit the men, this may not be the case, as the men can move faster than the bullets, and thus avoid them. There is a knack to using this gun — as with all weapons — which Mr. Orbaum seems not to have acquired!

b) *"I've just tried to run past a tree only to get stuck there with no way to pass it or to go sideways, and no option to turn back."*

It is possible to climb over virtually anything on the screen by moving the joystick backwards and forwards. There is a safe route through the game which has to be found by trial and error.

c) *Mr. Orbaum's parting comment of "completely bug-ridden".*

This is a seriously misleading statement, as anyone with a knowledge of programming will know that many hours of work go into producing a bug-free program, which this is. Mr. Orbaum is confusing his own lack of success with bugs in the program.

I do also object to the sarcastic manner in which Mr. Orbaum has used my name in his review.

I will be more than happy to demonstrate the program again to clear up any problems.

The game was designed to be a challenge to the serious games player, not to be completed within the first ten minutes of play. I have had other very favourable responses to the game. Mr. Chris Parkinson of the NDUG agrees that the game is hard but states "I think that *Fire Force* is an excellent piece of programming and a good game." Surely this must say something.

Quickbeam Software always welcome constructive criticism, for it is by this criticism that we improve our future products.

David Hitchman
Quickbeam Software

Depêche modem

Program: *DModem*
Supplier: H. C. Andersen Computer a/s, Englandsvej 380, DK-2770 Kastrup.
Price: £89.00 plus p&p.

H.C.ANDERSEN Computer A/S of Denmark have recently gained the license to distribute the Dragon implementation of Microware's OS-9 Level 1 (see DU Jan '87).

They are supporting this with a number of their own high quality software packages for the serious Dragon OS-9 user, such as *Dmodem* is a communications program running under OS-9.

It is completely menu driven and allows the computer to send and recieve files or act as a dumb terminal.

Options are selected from the menus using the 'cursor' up/down and the enter key (a la *Stylograph*).

The main menu offers the following options:

'Terminal' — selecting this enters the terminal emulation program, this allows you to log onto other computers (via a modem) and use the Dragon of the keyboard and screen. Control is returned to the program by pressing Clear-@.

'Receive' — This allows files to be received from another computer in one of three formats. Either ASCII text using the standard XON/XOFF protocol, or text using the CHR protocol, or binary using the CHR protocol.

'Transmit' — This option allows disk files to be sent to another computer/modem using one of the three protocols mentioned above. A visual display of the file being transmitted is given for text files.

The next three options allow the data capture buffer to be deleted (cleared), saved to disk, or examined if it is currently active.

The most important option is 'Modify Communications Protocol'. This allows just about every variable in serial data communications to be customized. Baud rates are supported from 50 to 2400, wordlength from 5 to 8 bits. The number of stop bits is alterable, as is the type of parity (if any) that is to be used.

Full or Half Duplex is supported, and the XON/XOFF characters may be changed, as may the 'interrupt' character (CLEAR-@ by default). The linelength may change from the default 50 for those using Dragon Plus etc.

Finally, there is the usual option to enter the OS-9 'Shell', allowing you to execute OS-9 commands until CLEAR-BREAK is entered which returns you to the calling program (Dmodem).

Dmodem comes across as a professionally finished program which contains most (but not all) of the features found in many of the established comms software packages (it should really contain many more built-in editing options). £89 is not excessive for this type of program, but be sure of your requirements before parting with your cash.



Requires Dragon 64 with disk drive and OS-9 system.

If you've got a technical question write to Brian Cadge. Please do not send a SAE as Brian cannot guarantee to answer individual inquiries.

Dragon Answers

Menu with too many options

I HAVE written a file management system for my Dragon with disc system. It is written in Basic and uses menus for all the options, using codes such as 'A','B','X' etc to choose the option required.

My problem is that on some menus there are fifteen or so options and I seem to need an IF-THEN-GOTO for every option, which is obviously making the program very long and using up RAM of which I am getting short. Can you suggest a way of reducing the number of If-THENs but keeping the use of single key presses for the menus?

Kevin Lecman
Ilkley
West Yorkshire

THE obvious answer is to use the ON-GOTO command. If the option pressed is in A$ then:

```
ON ASC(A$)-64 GOTO 100,200,300,
etc
```

Assuming the first option is 'A', followed by 'B' etc., the problem is more tricky if the option codes are not sequential. For example, if you have the options 'A','B', and 'X' then a similar solution would be as follows:

```
50 A$=INKEY$=IF A$="" THEN 50
60 ON INSTR(A$,"ABX") GOTO
100,200,300
70 PRINT "INVALID OPTION!":GOTO
50
```

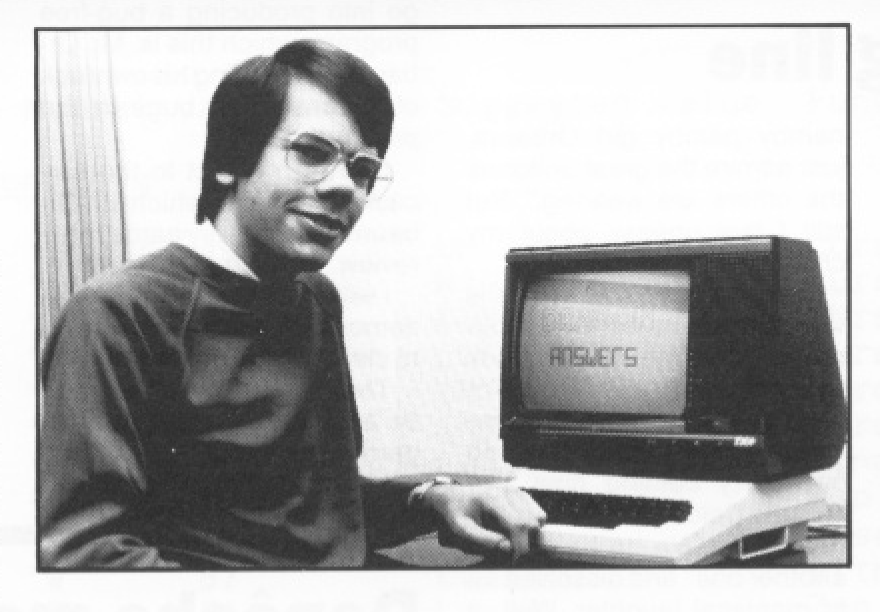
Virtual screen values

A PROGRAM I am writing at the moment for my Dragon 32 requires several 'virtual' screens to be used at once, but I'm not sure how to move the text screen around in memory. Could you tell me where the start address of the current text screen is held and what values I have to change to put it at different locations?

James Taylor
Oldbury
West Midlands

IT'S fairly easy to move the text screen around in memory, but unfortunately the ROM routines always expect it to be at $400 in RAM. Therefore, if you do move it around you'll have to use your own routines (maybe written in Basic) to clear the screen and print strings etc.
Here are the pokes to set the screen to various start addresses:

```
$400 — POKE &HFFC6,0:POKE
&HFFC9,0:POKE &HFFCA,0
$600 — POKE &HFFC7,0:POKE
&HFFC9,0:POKE &HFFCA,0
$800 — POKE &HFFC6,0:POKE
&HFFC8,0:POKE &HFFCB,0
$A00 — POKE &HFFC7,0:POKE
&HFFC8,0:POKE &HFFCB,0
```



Building a MIDI interface

I'VE got a Dragon 64 computer and a music synthesizer which is MIDI compatible (Musical Instrument Digital Interface). I would like you to tell me if you know about a MIDI interface for the Dragon computer.

Jose Santos Leal
Los Castros
Spain

I have not heard of anyone who produces a MIDI interface for the Dragon computer, but it should not be too difficult to build your own, which could plug into the cartridge port. Basically, you need to base it on the MC6845 serial communications (ACIA) chip which the MIDI standard uses. The only difference between MIDI and other serial ports is that I/O signals are not boosted to ± 12 volts but use the direct output from the chip at 5V.

I suggest you look in your local library or computer book club for a suitable book (of which there are many) on building a MIDI interface.

Memotech data transfer

I AM lucky enough to own two computers, a Dragon 64 with dual disc drive and a Memotech 512 with disc system. I have a long text file which I would like to transfer to the Dragon from the Memotech. Could you tell me if it is possible to read the data from the MTX disc with the Dragon disc drive?

Clive Ward
Harrow
Middlesex

THE Memotech disc sector format is similar to the Dragon's. The simple solution is to save your text file to a newly formatted blank disc on the MTX (it should be the only file on the disc). Then run the following program on the dragon with the MTX disc in drive 1 and a blank Dragondos disc in drive 2:

```
10 CLEAR 2000
20 S=3:T=2
30 SREAD 1,T,S,A$,B$
40 GOSUB 80
50 S=S+1:IF S=16 THEN S=1:T=T+1
60 GOTO 30
80 IF INSTR(A$,CHR$(26)) THEN 130
90 FWRITE "2:TEXT.DAT";A$
100 IF INSTR(B$,CHR$(26)) THEN
A$=B$=GOTO 130
110 FWRITE "2:TEXT.DAT";B$
120 RETURN
130 FWRITE "2:TEXT.DAT";LEFT $
(A$,INSTR(A$,CHR$(26))-1)
140 CLOSE
150 END
```

The text will now be in the file TEXT.DAT on drive 2. It may need some tidying up due to the differences in the CP/M and Dragondos use of end of line characters, but I leave that up to you.

Language problems

I AM currently trying to convert an adventure program written in the 'C' language to run on my Dragon 64. However, I have come across a problem; the 'C' program seems to use a 'pointer' variable to access a character string, but I don't think this is possible in Basic. The 'C' statement is as below:

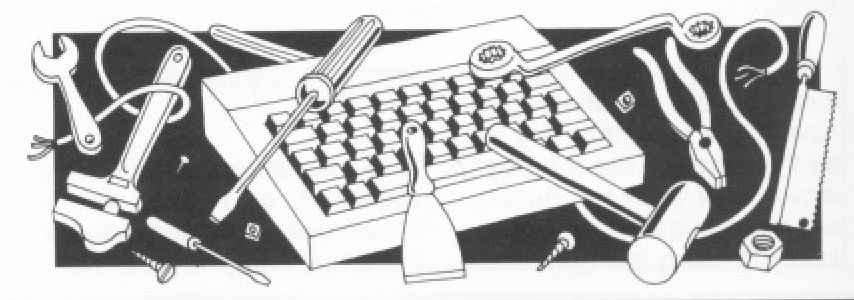
```
for:
(p=&location[0];plocation[10];p++)
  {
   if (*p == 'X')
      {
       map=p; break;
      }
   else
      {
       (*p)+=1;
      }
  }
```

Pete Hammond
Farnborough
Hants

DRAGON Basic doesn't support 'pointer' variables as such, but it is possible to directly convert the above by using string variables with the VARPTR function. This point is of general interest as it may be more efficient than using the string functions (MID$ etc) in some circumstances.

This program segment can be converted as follows:

```
100AD=PEEK(VARPTR(L$)+2)*256
+PEEK(VARPTR(L$)+3)
110 FOR P=AD TO AD+9
120 IF PEEK(P)=ASC("X") THEN
MAP=P:GOTO 150
130 POKE P,(PEEK(P+1) AND 255)
140 NEXT P
150 REM REST OF PROGRAM
```



FLEXible printing

Malcolm Cowan takes the hard work out of FLEX printer commands.

USERS of FLEX, especially those using a word processor under FLEX, will know the nuisance of having to put in extra lines of control characters at the start of each document to be printed, so as to set the printer into the right mode. Sometimes you can get away with it by setting the dip switches inside the printer — but all too often the print mode you want is not one which can be selected by altering the dip switches.

The EPS utility is a simple easily modified program you can use to set up any Epson printer (or any other printer for that matter if you redefine the print command section) into whatever combination of modes you desire.

EPS is written in Assembler, but you don't need to know any 6809 Assembler to copy it in, compile it, and use it. If you want to play around and redefine the print options given, then that's easy enough as well, the listing is annotated well enough for most changes to made without any reference to the Assembler section of the FLEX manual.

The section starting 'TEXT' specifies the startup message, the next section starting with the 'SO' line gives the reset commands which are always obeyed, followed by the different lines of print commands, one for each option. Finally the section starting 'LIST' connects up the printer command lines with the option letters.

Setting up the program

To set the source up —

1. Copy the Assembler definitions into ASMBDEFS.TXT.

Copy the program listing into EPS.TXT.

(If you already have an ASMBDFS.TXT file then make sure it includes the lines listed.)

2. Compile the program

ASMB EPS

This will put the compiled source into a file called EPS.BIN, and (hopefully) put a listing of the compiled program out to the screen with the magic message "O ERRORS" at the end.

3. Copy the file EPS.BIN to your System Disk as EPS.CMD so that it will be recognised by the Operating System.

Using the Program EPS

To use the program type in:

P EPS

The "P" is to force output to the printer. EPS will then display the list of options, thus:

"Type: Condensed, Double-strike, Emphasised, Hash, Italic"

"eleven inch, No page skip, Pica, Single sheet, 3 lines/in"

Select one or more options, eg "N31" would give No Page Skip, 3 line/inch, and Italic mode printing, then press Enter. The printer will reset the print head, and you are ready to go.

As defined here the program runs in the Utility Command area, and so can be used from the SPE word processor by Compusense, for those of you with that product (by the way if you're reading this Stan, thank you for the new version of SPE, it is a great improvement).

If anyone is feeling enthusiastic it should be possible to combine the "P" Command with the EPS command with a little bit of disassembling and hacking. I chose not to try this for two reasons — firstly it would make it dependant on a particular implementation on FLEX, and secondly I'm too bone idle. Still if anyone out there is willing to give it a try there's a challenge for you.

Listing of FLEX utility EPS

```
* Program to set up an Epson printer;  Malcolm Cowen 09/10/86
* Copyright Cowen Software Ltd 1986
* This program may be used free of charge by private
* individuals for domestic purposes, and may be included
* in libraries of Public Domain Software for that purpose

        LIB  ASMBDEFS
        ORG  $C100
        LBRA START
VN      FCB  1

* specify the message to be displayed, terminated by $04
TEXT    FCC  "Type: Condensed, Double-strike, Emphasised, Hash, Italic"
        FDB  $0D0A                       Newline
        FCC  "    eLeven inch, No page skip, Pica, Single sheet, 3 lines/in"
        FCB  $04

* specify the printer commands to reset the printer to a standard start state
SO      FCB  27,'@,27,'M,27,'N,12,$FF   Reset, Elite, Skip over Perf

* now specify the printer commands to set the various printer options
* for details see your epson manual;  each line is terminated by $FF
S3      FCB  27,'3,72,$FF                Set 3 Lines/inch
SC      FCB  27,'P,15,$FF                Set Condensed
SD      FCB  27,'G,$FF                   Set Double Strike
SE      FCB  27,'E,$FF                   Set Emphasised
SH      FCB  27,'R,0,$FF                 Set Hash
SI      FCB  27,'4,$FF                   Set Italic
SL      FCB  27,'C,0,11,$FF              Set Eleven Inch Paper
SN      FCB  27,'O,$FF                   Set No Skip over end of Page
SP      FCB  27,'P,$FF                   Set Pica
SS      FCB  27,'8,$FF                   Set Single Sheet
```

```
* this list links the lines of commands above to the input message
* the lines come in pairs the label, then the input option letter
* option letters may be numeric or alphabetic (upper case)
* the list is terminated by zeros
LIST    FDB  S3                    List of Options and pointers
        FCB  '3
        FDB  SC
        FCB  'C
        FDB  SD
        FCB  'D
        FDB  SE
        FCB  'E
        FDB  SH
        FCB  'H
        FDB  SI
        FCB  'I
        FDB  SL
        FCB  'L
        FDB  SN
        FCB  'N
        FDB  SP
        FCB  'P
        FDB  SS
        FCB  'S
        FCB  0,0,0
START   LDA  £1
        STA  SWOUT          Set o/p through screen
        LDX  £TEXT
        JSR  PSTRNG         Print options list
        JSR  PCRLF          n/l
        JSR  INBUFF         Get input line
        CLR  SWOUT          Reset normal o/p
        LDX  £S0            Start with a reset
LOOP    LDA  ,X+            Get next ch to o/p to printer
        CMPA £$FF
        BEQ  ENDL           Jif end of output string
        JSR  OUTCH
        BRA  LOOP
ENDL    JSR  NXTCH          Get next ch from the buffer
        BCS  END            Jif not alphanumeric

        CMPA £'Z
        BLS  UPPER          Jif already upper case

        SUBA £$20           Force upper case
UPPER   LDY  £LIST
OPTION  TST  2,Y
        BEQ  END            Jif end of option list
        LDX  ,Y++
        CMPA ,Y+
        BEQ  LOOP           Jif option recognised
        BRA  OPTION
END     CMPA £$0D
        LBEQ WARMS          Jif end of input line
        BRA  ENDL

        JSR  PCRLF          Clear printer buffer with a n/l
        END  START
```

Assembler definitions for EPS utility

```
*
* Standard system definitions
* Malcolm Cowen 09/08/86
*
*  DOS Equates
SWOUT   EQU  $CC22        Output Switch

WARMS   EQU  $CD03        Flex reentry point
OUTCH   EQU  $CD0F        Low level output a char
INBUFF  EQU  $CD1B        Input into line buffer
PSTRNG  EQU  $CD1E        Print string
PCRLF   EQU  $CD24        Print cr and lf
NXTCH   EQU  $CD27        Get next Buffer Character
```

Disc controller

***D. Marriott** brings Cumana under control with this menu utility.*

I HAVE been trying to invent a utility not covered in magazines. After a bit of thought I came up with Disc Controller to help me and my father use the Cumana system. The uses range from 'killing' and 'catalog' to 'sector read' and 'sector write'. The latter two are not important and can be omitted when typing if desired. This program is held on a disc which is only needed to load the program at the beginning. Please note the clear in line 10, which can stop programs loading with the lack of memory.

The program options are:

1-Reformat
2-Kill
3-Chain
4-Load
5-Catalog
6-Backup
7-Protect
8-Sector r
9-Sector w

REFORMAT can create any type of disc: single-sided, double-sided, etc.,and can delete all the programs on it. All the programs, if any, are first displayed on the screen so that they can be checked off, and the identity of the disc confirmed. There is an abort function, if it is wrong, which returns to the menu. It will then ask for the drive, disc sides and the number of tracks, and after a wait the menu will return.

KILL will remove a program from disc providing that it is not protected. First insert the disc. All the programs on it will be displayed. At this stage is the only chance to abort if you have made an error. It will ask for the title of the program to be killed followed by B/M/D/K, which stands for BASIC/ MACHINE CODE/ DATA/ BACKUP COPY. It will then kill the program and return to the menu.

CHAIN loads and auto-runs a program. It will first catalogue the inserted disc and then ask for the title of the required program. Then it asks for the file type that is B/M/D or BASIC/ MACHINE CODE/ DATA. If the wrong disc is inserted or an error has been made then do not type B,M or D.

LOAD does the same as chain except it does not auto-run. If an error is made then do not type B,M or D but another key and you will enter catalogue.

CATALOG asks for a disc and then it prints out all the programs on it.

BACKUP will either backup a single program or a whole disc. If another key besides I and D is input it will ask for the drives to be used. If they are the same use drive 1. You will then have to keep swapping discs if one drive is used, so ensure that a write-protect tag is on the disc to be copied from. For a single program it will ask for the title and requires an input of either BAS/ BIN/ DAT. This uses just one drive, so discs must be swapped quite often depending on program size.

PROTECT will guard any programs so that they cannot be killed except by reformatting the disc. It will show what is on the disc and then ask for the program title. It will then ask whether the program wants protection added or removed. If neither N or F is typed it will revert to the menu.

DISK SECTOR WRITE will ask for a track and a sector. You then type in two sections of words, characters, etc. This is then written on to the disc. There is no abort for this option. First type in the program then save it onto a disc using your own preferred filename.

```
10 CLEAR2000
20 CLS0:PRINT"THIS IS A MASTER CONTROL DISC":
30 PRINT@40,"(C)D.MARRIOTT 1986":
40 PRINT@192,"options":
50 PRINT@225,"1-REFORMAT":
60 PRINT@257,"2-KILL....":
70 PRINT@289,"3-CHAIN...":
80 PRINT@321,"4-LOAD....":
90 PRINT@353,"5-CATALOG.":
100 PRINT@385,"6-BACKUP..":
110 PRINT@417,"7-PROTECT.":
120 PRINT@449,"8-SECTOR R":
130 PRINT@481,"9-SECTOR W":
140 I$=INKEY$
150 IF I$=""THEN 140
160 ON VAL(I$)GOSUB 180,370,530,640,740,820,960,1040,1140
170 GOTO140
180 CLS:PRINT"    REFORMATING COMMAND"
190 PRINTSTRING$(32,"-"):PRINT"INSERT DISC-TO BE REFORMATED"
200 PRINT"PRESS A KEY"
210 ERROR GOTO240
220 I$=INKEY$:IF I$=""THEN 220
230 DIR
240 PRINT"ARE YOU SURE YOU WISH TO FORMAT?"
250 PRINT"IF NOT PRESS 'A' ELSE PRESS ANY KEY"
260 I$=INKEY$:IF I$=""THEN260 ELSE IF I$="A"THEN 10
270 CLS:PRINT"    REFORMATING COMMAND":PRINTSTRING$(32,"-")
280 PRINT"ENTER THE FOLLOWING"
290 INPUT"DRIVE...";A
300 INPUT"SIDES...";B
310 INPUT"TRACKS..";C
320 CLS0
330 PRINT@197,"REFORMATING!!!!!!!":
340 PRINT@224,"DO NOT TOUCH UNTIL OK APPEARS"
350 DSKINITA,B,C
360 GOTO20
370 CLS
380 PRINT"      KILL COMMAND":PRINTSTRING$(32,"-")
390 PRINT"INSERT DISC AND PRESS A KEY"
400 ERROR GOTO430
410 I$=INKEY$:IF I$=""THEN410
420 DIR
430 PRINT"PRESS 'A' TO ABORT ELSE PRESS   ANY KEY"
```

SEIKOSHA PRINTER GP-100A £95 Sanyo display monitor £45 Telewriter cassette version £25 Tel. 09323-43429 eves.

DRAGON PLUS 128K, Cumana twin disk drive. Dragon dos4 controller, Phillips 7502 monitor, flex and os9 operating systems, R.M.S database. Stephen M. Platts, Princes Park, Princes Avenue, Walderglade, Chatham, Kent ME5 7PQ.

SUPERDOS disk drive controller kit (excluding case) £55: tested working Dragon 32 (no lid) £38: Untested complete could be working! £35: Most Dragon spares inc 74LS783–£10.25, 6809E, 4164, transformers, CPU's, PSU'PCB. Phone for details — Nick Spiers 0892-44070 eve's.

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Telephone ____________

Please cut out and send this form to: Classified Department, *Dragon User*, 12-13 Little Newport Street, London WC2H 7PP

```
440 I$=INKEY$:IF I$=""THEN 440 ELSE IF I$="A"THEN 20
450 INPUT"TITLE TO BE KILLED";A$
460 INPUT"TYPE OR PROGRAM B/M/D/K";T$
470 IF T$="B"THEN KILLA$+".BAS"
480 IF T$="M"THEN KILLA$+".BIN"
490 IF T$="D"THEN KILLA$+".DAT"
500 IF T$="K"THEN KILLA$+".BAK"
510 SWRITE1,1,1,A$,T$
520 GOTO20
530 CLS:PRINT"      CHAIN COMMAND":PRINTSTRING$(32,"-")
540 PRINT"INSERT DISC AND PRESS A KEY"
550 ERROR GOTO580
560 I$=INKEY$:IF I$=""THEN 560
570 DIR
580 INPUT"CHAIN..";A$
590 INPUT"TYPE B/M/D";T$
600 IF T$="B"THEN CHAINA$
610 IF T$="M"THEN CHAINA$+".BIN"
620 IFT$="D"THEN CHAINA$+".DAT"
630 GOTO20
640 CLS:PRINT"       LOAD COMMAND":PRINTSTRING$(32,"-")
650 PRINT"INSERT DISC AND PRESS A KEY"
660 ERROR GOTO690
670 I$=INKEY$:IF I$=""THEN 670
680 DIR
690 INPUT"LOAD....";A$
700 INPUT"TYPE B/M/D":T$
710 IF T$="B"THEN LOADA$
720 IF T$="M"THEN LOADA$+".BIN"
730 IF T$="D"THEN LOADA$+".DAT"
740 CLS
750 PRINT"     CATALOG COMMAND":PRINTSTRING$(32,"-")
760 PRINT"INSERT DISC AND PRESS A KEY"
770 I$=INKEY$:IF I$=""THEN770
780 DIR
790 FOR T=3 TO 18:SREAD1,0,T,A$,B$:NEXTT
791 PRINT"PRESS A KEY"
800 IF INKEY$=""THEN 800 ELSE 10
810 END
820 CLS:PRINT"      BACKUP COMMAND":PRINTSTRING$(32,"-"):
830 INPUT"INDIVIDUAL PROGRAM OR WHOLE DISC (I/D)";A$
840 IF A$="I"THEN 910
850 IF A$="D"THEN 870
860 GOTO20
870 INPUT"DISC TO DISC NUMBERS";A,B
880 IF A=B THEN BACKUP:GOTO20
890 BACKUP A TO B
900 RUN
910 INPUT"NAME OF PROGRAM";N$
920 PRINT"THE SAME DISC DRIVE IS USED!!"
930 INPUT"TYPE BAS/BIN/DAT";S$
940 SCOPYN$+"."+S$ TO N$+"."+S$
950 GOTO20
960 CLS:PRINT"     PROTECT COMMAND":PRINTSTRING$(32,"-")
970 DIR
980 INPUT"NAME OF PROGRAM";N$
990 INPUT"On OR OfF ";E$
1000 INPUT"TYPE BIN/BAS/DAT";S$
1010 IF E$="N"THEN PROTECTN$+"."+S$:SWRITE1,1,1,E$,N$
1020 IF E$="F"THEN PROTECTOFFN$+"."+S$:SWRITE1,1,1,E$,N$
1030 GOTO20
1040 CLS:PRINT"  DISC SECTOR READ"
1050 PRINT"INSERT DISC AND PRESS A KEY"
1060 IF INKEY$=""THEN 1060
1070 INPUT"TRACK";TR
1080 FOR T=3 TO 18:SREAD1,TR,T,A$,B$
1090 PRINTT;"1:";A$:PRINTT;"2:";B$
1100 PRINT"PRESS A KEY"
1110 IF INKEY$=""THEN 1110
1120 NEXTT
1130 GOTO10
1140 CLS:PRINT"   SECTOR WRITE COMMAND"
1150 PRINT"INSERT DISC AND PRESS A KEY"
1160 IF INKEY$=""THEN 1160
1170 INPUT"TRACK":T
1180 INPUT"SECTOR":S
1190 INPUT"PART ONE WRITING";A$
1200 INPUT"PART TWO WRITING";B$
1210 SWRITE1,T,S,A$,B$
1220 GOTO10
```

Expert's Arcade Arena

Write to 'The Expert' at Dragon User 12-13 Little Newport St, London WC2H 7PP. with all your arcade tips and hints.

HELLO, and welcome to the Expert's public confession. Yes, the mystery is history. The Expert is revealed! Before the amazing games round up, here is a brief c.v:

NAME: The Expert.

BORN: Obviously.

SEX: Regularly. *(He practices a lot by himself — Ed.)*

CHILDHOOD: The Expert's mother, to her relief, died at birth (his, not hers). The Expert spent his childhood in prison serving a twelve year sentence for involuntary manslaughter and making useful contacts. His release was marked by fireworks, street parties, spontaneous three minute silences and British Telecom getting SEVEN numbers right in a row!

EXPERIENCE ON COMPUTERS: After several months' reading, The Expert designed his own computer. Following established trends (Apple, Apricot) he called his design The Herring. It had no RAM and no ROM, as it was, in fact, a box with one of those horrible Sinclair keyboards. Consequently, it was simple to use, and sold quite well for a while. The Expert went on to design the Red Herring. This had 128K RAM, 128K ROM, Forth, C, Pascal and Basic as standard, and was even simpler to use, as he took the advice of the micro world and removed the keyboard. Unfortunately, this made programming rather difficult.

The Red Herring sank. The Expert bought a Dragon 32 and decided to write games.

After some three years locked in a garret with a continuous supply of games, he had yet to write a coherent program *(Or anything — ouch — Ed.)* , but he knew more than anyone else in the world about Dragon games. Emerging from his garret, he found that Dragon Data had gone down the drain. Attempting to emulate its progress, he tripped over a veritable vision of loveliness who was throwing up double Martinis in a gutter in Little Newport Street. Its name was Helen Armstrong. Much has been written about their whirlwind relationship in the mass media .The rest is history. *(The Expert was looking for his specs at the time. The editor he trod on was Mr. John Cook, who always carries a sawn off broomstick to protect himself from confused and emotional software reviewers. The Expert accepted the job on the spot. — Ed.)*

Games roundup

So, on to this month's promised 'games roundup'. What I have done is picked fifty games from the back catalogue and given you an opinion. This should sort out some of the letters asking my opinion on this game and that.

If you feel this column has been useful, I will consider a list of what games to avoid, and why.

Every game listed is one that I have enjoyed playing, and the list is intended to help those adding to their own collections. Under 'Graphics', I have considered how the game looks while PAUSED — making no allowance for smoothness of movement. All ratings are from zero to five. In 'Speed', the rating goes from zero: incredibly slow to five: too damn fast! Please note: the overall rating does not correspond to the usual Dragon ratings, because these games are ALL FOUR DRAGONS AT LEAST in the normal rating. They are all good; some of them are brilliant.

Under 'Type' I have assigned the following categories: **Shoot-em-up**: left-right-fire games; **Collection**: walkways, ladders, from *Manic Minor* to *Boris the Bold*; **Penetration**: scramble type games; **Adventure**: *Time Bandit* et al; **Strategy**: games where thought is as important as speed; **Kung Fu**:nuff said.

The games listed are not all necessarily still available, but suppliers like John Penn and Computape may still have copies. Prices will vary. As a rough guide, the first thirteen are Blaby games, the next twenty seven are Microdeal.

Name	Graphics	Speed	Type	Comment	Rating
Boris the Bold	4	3	Collection	If you can get hold of one of the copies which allows you to play without the hazard of power surges, this is a really great fun game.	4
Brock's Kingdom	2	2	Adventure	With the map (see last issue) the game's a cinch, but try it without.	2
Caverns of Chaos	5	3	Collection	This one's too close to *Manic Minor* for comfort, but similarities aside, the game has some very devious screens, and a very nice feel to it.	3
Copta Snatch	3	5	Penetration	The ultimate test for arcade game players. If you can do this one without cheating count yourself among the elite few who will be remembered after their death!	5
Dragon Darts	4	n/a	Strategy	Excellent design makes this one work. It's very difficult to transfer traditional games to a computer, but this works very well thanks to the way they've done it. It's not the same as playing darts at the local, but it's almost as much fun!	3
Fingers	2	2	Collection	It's not the fastest of its type, or the best looking, but it's pretty damn hard, and at a high difficulty level it's really rather playable.	2
Gi's A Job	2	3	Adventure	Ignoring the fact that unemployment isn't the most tasteful subject for a game, this one will make a great set of maps if anyone wants to do them!	3
Kung Fu — The Master	4	4	Kung Fu	This the THE BEST kung fu game available for the Dragon. Ignore the fact that only one person can play it at a time because this one has very good accuracy and really does sprovide a challenge that becomes progressively more difficult.	5
Mutant War	1	2	Adventure	This is one of the many not good versions of *Berzerk* available for the Dragon	1
Olympia	2	2	n/a	This is one of the many not good versions of *Track and Field* available for the Dragon.	2

Name	Graphics	Speed	Type	Comment	Rating
Ruby Robba	3	3	Strategy	This really is a good little thinking and reacting game. I wouldn't rave overly about it, but it looks good and sounds good.	3
Star Swoop	4	2	Shoot-em-up	This is a game for when your friends come round and want to play a shooting game but really aren't very good. Fire for beginners, but it doesn't get any more difficult, so it's only a warm-up.	2
Starman Jones	4	4	Penetration	Based vaguely on a Spectrum game called *Lunar Jetman*, this is not very good but it's fun on those long winter evenings.	
Speed Racer	5	3	n/a	This is the best driving game the Dragon will ever know, so get one today. It's 3-D, with a choice of four tracks and really great for competitions with other people, as each track has its own high score.	5
Danger Ranger	3	3	Collection	This is a typical Ken Kalish game, it's almost complete!	4
Cuthbert in Space	3	2	Collection	The closest to *Jet-Pac* the Dragon has ever seen, with the most irritating 'extra bit' ever seen, as well. I mean, who wants to spend half an hour lining numbers up?	2
Cuthbert goes Walkabout	2	3	Strategy	A very under-rated Amidar, that admittedly usffers from lack of variation.	3
Mr. Dig	2	2	Collection	The only half way decent version of the arcade classic available for the Dragon, and this is really only half way decent!	
The Official Frogger	3	3	n/a	This is really very good, and for some obscure reason, seems to be more favoured among women than men!	5
Phantom Slayer	4	4	Adventure	If you like *Escape* then you'll love this bit of 3-D ghostbusting!	3
Cuthbert in the Cooler	3	3	Adventure	The only thing wrong with this game is that there are really not enough screens to provide sense of satisfaction when it is finished.	3
*Cu*ber*	2	2	Strategy	It's a pity there aren't more versions of *Q*bert* about, but *Cu*ber* is the best I've seen.	2
Buzzard Bait	3	3	n/a	At its best, in two player competitions this version of-*Joust* is now available dongle-less, which means it now costs a sensible amount.	
Beam Rider	4	4	Strategy	Highly under-rated, this is probably one of my favourite games for the Dragon. It's totally original, requires a lot of skill and should have been a best seller.	5
Talking Android Attack	2	2	Adventure	This is another of the not very good versions of *Berzerk* for the Dragon. This one has the worst speech impediment I've ever heard.	
Athletyx	2	1	n/a	This is another of the not very good versions of *Track and Field* for the Dragon. This is the one that overnigbht increased joystick sales by 400% due to the snapping of so many while trying to play it.	2
Chambers	4	3	Adventure	This is a game based upon one that came out for that video games machine with the vector screen whose name I can't remember (*Ah! My poor heart! Can it be — the Vectrex machine? More man hours wasted trying to enter the citadel and zap the asteroids than any other so-called micro game in the history of the universe. Where are you now? — Ed.*) and it's very challenging indeed, even if it does get a bit boring after a while.	3
Grabber	4	3	Collection	This is the best version of *Pac-Man* seen on the Dragon. It's so simple — why is it so hard?	5
Katerpillar II	4	4	Shoot-em-up	This is an excellent version of *Centipede*, and once you get used to playing it without a track-ball it becomes maddeningly addictive.	4
Eight Ball	4	2	Strategy	Almost like a game of pool, except you don't knock someone's drink over as you pull the cue back!	3
Skramble	4	2	Penetration	This is a game that you really CANNOT go on playing for ever. Try it, and you'll see what I mean!	3

Winners and Losers

Every month, Gordon Lee will look at some prize programming points from a previous month's competition

OCTOBER'S competition had a trace of a musical flavour about it, based, as it was, on the letters in the name 'Elgar'. The problem was to assign digits to the letters E,L,G,A, and R such that the sum of the anagrams of the composers name — ELGAR + REGAL + LARGE + LAGER + GLARE — produced a six-digit number in which each of the digits was a digit already in use in the generating words. Further, this value, when letters were resubstituted, formed a sequence in which no letter at any position was in common with either 'LAAGEL' or 'GERLIG'.

The nub of the problem was in allocating digits to the letters, and the majority of entrants used one of two techniques. These were either by testing all values in the range 12304 to 98765 for duplication of digits, or, by generating each digit seperately using five FOR/NEXT loops.

Listing one illustrates the general method used in the first of these methods. Note the initial value in the FOR/NEXT loop at line 20. This is the minimum value that can represent 'ELGAR', not 12345 nor 10234 as some entrants though. (Remember that 'A' is the only letter that can be replaced by a zero as the other four letters all appear as the first letters of the anagrams, and 'leading' zeros are not allowed). Each value in the loop is then converted to a string variable which is then tested for duplication of any digit. This is done using the two extra loops 'F' and 'G'. If any match if found a flag (FL) is set to 1 to denote this. To speed up the execution of this routine the two loops are terminated immediately that a match has bee found by increasing the values of F and G to their maximum limits. It is possible to terminate the loops by 'jumping out' of them, but this is not good practice. You can get away with it on the 'Dragon' but on many other micros you would not be so lucky!

As a method, however, **listing one** is many times slower in execution than the alternative, as demonstrated in **listings two and three**. Here, each digit is generated separately, and amongst those competitors who chose this method, entries were more or less evenly divided between the two variations shown. The difference is in the 'NEXT' part of the loops. **Listing two** is the simpler in respect of programming as all of the 'nexts' are on a single line. Unfortunately, this slows down the running time considerably as many unnecessary tests are carried out. For example, if 'E' and 'L' are similar there is no point in continuing to test all 810 permutations of the remaining three letters. With the 'next' part of the loops occurring on a single line it is not possible to control this wasted effort (on the part of the computer). **Listing 3** eliminates this problem by testing each value as it is generated, keeping the five loops completely seperate.

The reason that I have included these listings is to illustrate the way in which the running time of a program often depends on the method used, (and remember that these only represent one section of the final program required to solve the problem). The best method to be adopted can often be determined by running test listings such as these, and time spent in doing this is time well spent. It would not be necessary to run each of these listings to completion. Just stop the program after a predetermined time, test the state of the variables at that moment, and then compare the results. Note that these listings are just the 'top' and 'tail' of the program — it is still necessary to perform other checks.

The first of these would be to substitute digits for letters so as to evaluate the final sum of the alphamatic. Keith David of Crawley came up with a very ingenious method which reduced the whole operation to a single program line:

SUM = (11012*E)+(22001*L)+(10310*G)+(2120*A)+(10112*R)

Each of the values E,L,G,A, and R is multiplied by digits which represent the number of times that the value occurs in any given position in the alphametic. G for example is multiplied by 10310. This indicates that the G does not occur in the units position, once in the 'tens' postion, three times in the 'hundreds', and so on.

Once this sum is calculated (by whatever method), it is then necessary to test each digit to ensure that it is one of the values already assigned to the generating words.

The final stage is to compare all possible values that have survived the tests so far, with the sequences 'LAAGEL' and 'GERLIG'. I am taken to task by Alan Thomas of Staplehurst who complains that my listing on page 5 of January's DU still requires this final test to be carried out 'by hand'. Point taken Mr. T., but in a program that runs for some time, I generally prefer to see some evidence of output rather than have a blank screen. Not only does this ensure that the computer is not 'stuck' in some endless loop somewhere due to a programming error, but in the case in question, the list of possible solutions can also be used to test that the program is working correctly if one or two of these values are checked against the original alphamatic.

Finally, one competitor, Denis O'Mulloy, used a set of five randomly generated integers instead of the expected FOR/NEXT loops. This, he reports, produced the required result after a running time of 30 minutes. While not recommending this method of approach it seems to have worked this time more, I should imagine by luck than judgement! We will be having a closer look at the use of random numbers in solving problems in next month's *Winners & Losers*.

Listing 1

```
10 TIMER=0
20 FOR N=12304 TO 98765
30 N$=STR$(N):N$=MID$(N$,2)
40 FL=0
50 FOR F=1 TO 4:FOR G=F+1 TO 5
60 IF MID$(N$,F,1)=MID$(N$,G,1) THEN FL=1:
   F=4:G=5
70 NEXT G,F
80 NEXT N
90 PRINT TIMER
```

Listing 2

```
10 TIMER=0
20 FOR E=1 TO 9
30 FOR L=1 TO 9
40 FOR G=1 TO 9
50 FOR A=0 TO 9
60 FOR R=1 TO 9
70 IF E=L OR E=G OR E=A
OR E=R OR L=G OR L=A
OR L=R OR G=A OR G=R
OR A=R THEN 80
80 NEXT R,A,G,L,E
90 PRINT TIMER
```

Listing 3

```
10 TIMER=0
20 FOR E=1 TO 9
30 FOR L=1 TO 9
40 IF E=L THEN 140
50 FOR G=1 TO 9
60 IF E=G OR L=G
   THEN 130
70 FOR A=0 TO 9
80 IF E=A OR L=A OR
   G=A THEN 120
90 FOR R=1 TO 9
100 IF E=R OR L=R OR
    G=R OR A=R THEN 110
110 NEXT R
120 NEXT A
130 NEXT G
140 NEXT L
150 NEXT E
160 PRINT TIMER
```

Hooks and Ns

Extra facilities can be hooked onto Dragon BASIC. ***Philip G. Scott*** *does the hanging.*

DRAGON Basic has a set of 25 'Hooks' (or 'Expansion Vectors' — see *Dragon User*, February 1986, Firmware) which enable you to hang extra facilities onto the Basic-provided. Many of these are used by the various DOS programs (DRAGONDOS, SUPERDOS, DOSplus etc.) to add the disc commands. After reading this article, you should be able to add your own facilities, in the correct way, without interfering with any other programs already using the hooks.

As an example, a facility is described to give a 'RESTORE n' capability to restore to a line number, together with a RENUM facility to renumber the lines in the RESTORE command, something that has been requested time and again in *Dragon User*, without a satisfactory answer. The example has been simplified by making one assumption, that this is the only add-on which affects a RENUM/RESTORE combination.

Table one gives a recap of the hooks and the BASIC routines that call them. This is not identically worded to the Brian Cadge article, but is my interpretation of the usage.

To use a hook correctly, a number of things have to be done to ensure your extra feature works correctly and does not remove another feature already using the hooks.

Firstly, of course, you must have a routine to be called through the hooks! For most of the hooks, this routine should preserve the state of the condition codes and any other registers used, in case they are assumed to be in a certain state by any other routine using the hook (or indeed the Basic routine which called the hook). This is done in the RENUM facility of **Figure one**, but not in the RESTORE, as the state of the registers before a call to this hook is undefined.

Secondly, any routine added in through a hook should exit through the hook vector which existed before the routine itself was initialised, if the routine has not been actioned. This ensures that any other facilities in use are not lost.

Finally, the vector to the new routine should be entered in the hook. Ideally, this is done by an initialisation routine that attempts to prevent itself being called twice. If this should happen, the hook routine will exit to itself!

The example program of **Figure one** is a modified version of that in DOSplus, is fully position independent and gives a facility to restore to a line number (or the program start if no line number is given). The example is in three parts, an initialise routine (SETUP), the RESTORE extension (RESTO) and the extension to RENUM (RENM).

SETUP starts by copying the vectors for the hooks to be used into the exit point of the relevant routine, then writes a jump to each routine in the hooks. Finally, the address of the ?FC ERROR routine is written as the EXEC address, to prevent an inadvertent second initialisation, before returning to BASIC.

After SETUP is obeyed, RESTO takes precedence over the built in RESTORE command, by detecting the token value (KRESTO) as the first character of a BASIC statement. If RESTORE is found, the default DATA pointer (the address of the start of the program, in STPROG) is loaded into the X register and a test made for a line number through GETCHA. If the presence of a line number is detected, AS2BN is called to convert the ASCII string of digits to binary, and FNDLIN called to find the line. If the line is not found (the C flag is set) an ?UL ERROR message is output, otherwise the DATA pointer is set to point at the end of the preceding line. Note that the line specified need not itself contain a DATA statement, as the first DATA statement occurring after the specified line will be used by the next READ.

The final part of the program covers the RENUMbering of line numbers in RESTORE commands. The hook used for this is also called from three other places (Function =, GET/PUT and CLS), so that the registers must be preserved. As only X and CC are affected, these are pushed onto the stack. The return address is then tested to see if RENUM is the calling routine and, if not, X and CC are pulled and the original hook vector used to move on. If the calling routine is RENUM and the token value is KRESTO, this is changed to KTHEN (the token for THEN) before returning to RENUM to renumber the line number following THEN! (Not really good programming practise, but very effective in this instance).

You should now have an idea of how to use the BASIC hooks effectively to hang on extra goodies, and a useful RESTORE to line number facility. To make it easier to load the routines, **Figure two** is a Hex dump in 'standard' form of

address 8 data bytes = sumcheck

After loading, the 105 bytes of the program should be saved by

SAVE LA , LA+105 , LA

where LA is the address at which it was loaded (3100 in the dump). (Remember it is position independent, so can be put anywhere.) Note that only 104 bytes are shown in the dump, as the value of the remaining byte is set by SETUP. **Figure three** is a simple test program to check the facility, including RENUM if desired.

Table 1 — Hooks

Hook Address	Called From	Function
015E	B828	Open drive or file
0161	B7EB	Check I/O device number
0164	B595	Return device parameters
0167	B54A	Character output
016A	B50A	Character input
016D	B623	Check device is open for input
0170	B63C	Check device is open for output
0173	B65C	Close all devices and files
0176	B663	Close a single device or file
0179	84DE	About to deal with first character of statement
017C	8792	Disc file item scanner
017F	B77B	Poll for BREAK or special keys
0182	B5C6	Read a line of input
0185	B6FD	Finish loading ASCII program
0188	B800	End of file (EOF) function
018B	8954	Evaluate an expression
018E	8344	User error trap
0191	8347	System error trap
0194	85A5	RUN statement
0197	8424	CLEAR statement
	& 8C80	String copy check
019A	849F	Fetch next statement
019D	86D7	LET string copy check
01A0	850F	Function assignment validation
	& 9EEB	RENUM statement, token processing
	& AAF7	PUT/GET statement
	& BA5F	CLS statement
01A3	8F67	Compress BASIC line for storage
01A6	8F08	Expand BASIC line for listing

Figure 1 — Assembler Listing

```
0C1C                    ********************************
0C1C                    * RESTORE N
0C1C                    ********************************
0C1C                    * Equates
0C1C                    ********************************
0C1C         1400       MEM    EQU    *
0C1C         0C1C              ORG    3100
0C1C                           PUT    MEM
0C1C         869A       AS2BN  EQU    $869A
0C1C         0033       DATPOS EQU    $33
0C1C         8B8D       ERRFC  EQU    $8B8D
0C1C         8344       ERROPT EQU    $8344
0C1C         009D       EXECAD EQU    $9D
0C1C         83FF       FNDLIN EQU    $83FF
0C1C         009F       GETCHA EQU    $9F
0C1C         0090       KRESTO EQU    $90
0C1C         00BF       KTHEN  EQU    $BF
0C1C         9EEE       RENUM  EQU    $9EEE
0C1C         002B       SRCHLN EQU    $2B
0C1C         0019       STPROG EQU    $19
0C1C         000E       ULERR  EQU    $0E
0C1C                    ********************************
0C1C                    * PROGRAM
0C1C                    ********************************
0C1C                    * Copy hook vectors for exit
0C1C                    ********************************
0C1C    B6 0179         SETUP  LDA    $179
0C1F    A7 8C 4A               STA    REST1,PCR
0C22    FE 017A                LDU    $17A
0C25    EF 8C 45               STU    REST1+1,PCR
0C28    B6 01A0                LDA    $1A0
0C2B    A7 8C 54               STA    RENM2,PCR
0C2E    FE 01A1                LDU    $1A1
0C31    EF 8C 4F               STU    RENM2+1,PCR
0C34                    ********************************
0C34                    * Setup new hook vectors
0C34                    ********************************
0C34    33 8C 38               LEAU   RENM,PCR
0C37    FF 01A1                STU    $1A1
0C3A    33 8C 11               LEAU   RESTO,PCR
0C3D    FF 017A                STU    $17A
0C40    86 7E                  LDA    #$7E
0C42    B7 01A0                STA    $1A0
0C45    B7 0179                STA    $179
0C48    CE 8B8D                LDU    #ERRFC
0C4B    DF 9D                  STU    EXECAD
0C4D    39                     RTS
0C4E                    ********************************
0C4E                    * RESTORE
0C4E                    ********************************
0C4E    81 90           RESTO  CMPA   #KRESTO     Test for RESTORE token
0C50    26 1A                  BNE    REST1
0C52    32 62                  LEAS   2,S
0C54    9E 19                  LDX    STPROG      Load default pointer
0C56    9D 9F                  JSR    GETCHA
0C58    27 08                  BEQ    NONUM       No line number
0C5A    BD 869A                JSR    AS2BN       Get line number
0C5D    BD 83FF                JSR    FNDLIN      Find required line
0C60    25 05                  BCS    ERRUL       Jump if line not found
```

```
0C62    30 1F        NONUM   LEAX    -1,X
0C64    9F 33                STX     DATPOS         Set DATA pointer
0C66    39                   RTS
0C67    C6 0E        ERRUL   LDB     #ULERR
0C69    7E 8344              JMP     ERROPT         Output ?UL ERROR
0C6C                 REST1   RMB     3
0C6F                 ********************************
0C6F                 * RENUMBER
0C6F                 ********************************
0C6F    34 11        RENM    PSHS    X,CC
0C71    AE 63                LDX     3,S
0C73    8C 9EEE              CMPX    #RENUM         From RENUM?
0C76    26 08                BNE     RENM1          Jump if not
0C78    81 90                CMPA    #KRESTO        RESTORE token?
0C7A    26 04                BNE     RENM1          Jump if not
0C7C    86 BF                LDA     #KTHEN         Renumber THEN !
0C7E    35 91                PULS    PC,X,CC
0C80    35 11        RENM1   PULS    X,CC
0C82                 RENM2   RMB     3
0C85                 *
```

Figure 2 — Hexdump

```
3100 182   1 121 167 140  74 254   1 =  940
3108 122 239 140  69 182   1 160 167 = 1080
3116 140  84 254   1 161 239 140  79 = 1098
3124  51 140  56 255   1 161  51 140 =  855
3132  17 255   1 122 134 126 183   1 =  839
3140 160 183   1 121 206 139 141 223 = 1174
3148 157  57 129 144  38  26  50  98 =  699
3156 158  25 157 159  39   8 189 134 =  869
3164 154 189 131 255  37   5  48  31 =  850
3172 159  51  57 198  14 126 131  68 =  804
3180  57 198  14  52  17 174  99 140 =  751
3188 158 238  38   8 129 144  38   4 =  757
3196 134 191  53 145  53  17   0   0 =  593
```

Figure 3 — Test program

```
10 INPUT "RESTORE TO (1 TO 5)";I
20 IF I<1 OR I>5 THEN PRINT "OUT OF RANGE" : GOTO 10
30 ON I GOSUB 110,120,130,140,150
40 READ A$ : PRINT A$
50 GOTO 10
110 RESTORE 500 : RETURN
120 RESTORE 510 : RETURN
130 RESTORE 520 : RETURN
140 RESTORE 530 : RETURN
150 RESTORE 540 : RETURN
500 DATA "DATA LINE 1"
510 DATA "DATA LINE 2"
520 DATA "DATA LINE 3"
530 DATA "DATA LINE 4"
540 DATA "DATA LINE 5"
```

The Answer

This is Gordon Lee's own solution to the December competition
see page 30 for results

ANSWER: The substitution should be performed as follows:

A	F	H	M	N	O	R	S	T	W
9	4	2	7	6	5	8	1	0	3

Thus: SANTA = 19609 (a prime number)
FROST = 48510 (a multiple of 7)
NORTH = 65802 (a multiple of 11)
SNOWMAN = 1653796 (1286 squared)

Solution: The problem is solved by using the three programs given, plus some cross-checking of results. First, we need to find all those square numbers which have seven digits, have the second digit the same as the seventh, and have all other digits different. This results in seven possibilities as listed in table 1. From this we can now find possible values for 'SANTA'. We know that 'N' must be '6', and 'S' can only be 1,2,4, or 9. 'A' as we have already observed must be 1,3,7, or 9. This is included in **listing one** at line 40. In the program, line 50 rejects all squares in which the second and seventh digits do not match, and lines 60 to 90 test that all other digits are different. This results in seven possibilities as listed in table 1. From this we can now find possible values for 'SANTA'. We know that 'N' must be '6', and 'S' can only be 1, 2, 4, or 9. 'A' as we have already observed must be 1, 3, 7, or 9.

Program **listing two** takes these known values and finds possible values f? the letter 'T' which form prime numbers. A test for primes is performed in lines 100 to 150. This produces **listing two**. We know from our 'snowman' list that 'SAN' can only equal either 176, 196, 276, 416, 916, or 936, so all entries which do not begin with these digits are crossed off the list. The digit represented by the letter 'T' is also checked against the relevant digits in the seven-digit square as it cannot be amongst them. Further numbers can then be crossed off the list. For example, the prime 17627 has the substitutions S=1, A=7, and N=6 so it must be paired with the 'snowman' substitution 1623076. In the prime the 'T' is represented by a digit 2, but this is already in 'snowman' where it represents on 'O', therefore this substitution is not possible.

This results in eleven possible pairings of 'SNOWMAN' and 'SANTA', and from these the digits represented by the letters 'OST' can be found in each case.

SNOWMAN	SANTA	'OST'
1623076	17657	215
1653796	19609	510
2643876	27617	421
2643876	27697	429
4605316	41621	042
4605316	41681	048
4639716	41621	342
4639716	41651	345
4639716	41681	348
9634816	91621	392
9647236	93683	498

We now need to find all five-digit multiples of 7 which end in the 'OST' digits from the above table. This is done using **listing three**, line 40 eliminating all values which do not end in the required digits. Each entry is then tested to ensure that all digits are different. The results are given in table 3. The two 'new' digits as represented by the letters 'FR' are then compared with the digits in 'SNOWMAN' and 'SANTA' in each case. Those in which the digits are duplicated can be crossed off list 3. We are left with ten possible sets of figures. In each case we have a substitution for all letters except 'H'. This is found in the word 'NORTH' which is a multiple of 11. If the substitution is made, only one case out of the ten will produce the required result.

Listing 1 – Snowman

```
 10 FOR N=1111 TO 3162
 20 S=N*N:S$=STR$(S):S$=MID$(S$,2)
 30 V=VAL(MID$(S$,6,1))
 40 IF V=0 OR V=2 OR V=4 OR V=5 OR V=6
    OR V=8 THEN 110
 50 IF MID$(S$,2,1)<>MID$(S$,7,1) THEN 110
 60 S$=LEFT$(S$,1)+RIGHT$(S$,5):FL=0
 70 FOR F=1 TO 5:FOR G=F+1 TO 6
 80 IF MID$(S$,F,1)=MID$(S$,G,1)THEN FL=1
 90 NEXT:NEXT
100 IF FL=0 THEN PRINT N;"  ";N*N
110 NEXT
```

Listing 2 – Santa

```
 10 FOR S=1 TO 9
 20 IF S=3 THEN S=4
 30 IF S=5 THEN S=9
 40 FOR A=1 TO 9 STEP 2
 50 IF A=5 THEN A=7
 60 IF A=S THEN 170
 70 FOR T=0 TO 9
 80 IF T=S OR T=A OR T=6 THEN 160
 90 SANTA=S*10000+A*1000+600+T*10+A
100 LIMIT=SQR(SANTA)+1
110 FL=0
120 FOR F=3 TO LIMIT STEP 2
130 IF SANTA/F=INT(SANTA/F)THEN FL=1:F=LIMIT
140 NEXT F
150 IF FL=0 THEN PRINT SANTA
160 NEXT T
170 NEXT A
180 NEXT S
```

Listing 3 – Frost

```
 10 FOR N=10003 TO 99999 STEP 7
 20 S=N:S$=STR$(S):S$=MID$(S$,2)
 30 V=VAL(RIGHT$(S$,3))
 40 IF V=215 OR V=510 OR V=421 OR V=429 OR
    V=42 OR V=48 OR V=342 OR V=345 OR V =348
    OR V=392 OR V=498 THEN 50 ELSE 90
 50 FL=0:FOR F=1 TO 4:FOR G=F+1 TO 5
 60 IF MID$(S$,F,1)=MID$(S$,G,1) THEN FL=1
 70 NEXT:NEXT
 80 IF FL=0 THEN PRINT N
 90 NEXT
```

Table 1

1274	1623076
1286	1653796
1626	2643876
2146	4605316
2154	4639716
3104	9634816
3106	9647236

Table 2

17657	41621
19609	41681
27617	91621
27697	93683

Table 3

27048	70392
48510	89215
50421	98042
50498	97048
51429	98042



THERE seems to be no stopping young Michael Edwards of Broomsoft, who as well as seeming to write about six million adventures a year, now seems to be involved in magazine production as well. He's sent me a copy of something just called Dragon Magazine, produced by Broomsoft and Dragonfire Software, which will cost £2.50 for six months — or £1.20 if you also send your own six stamps in to cover the postage. The reason it's so cheap is that it's obviously produced very cheaply. The issue I saw was just ten photocopied pages stapled together, but the pages contained lots of useful information — and even an adventure column by someone called Punchjaw, though needless to say it does not come up to the exceedingly high standard of the Adventure Trail. I mean, how could that even be feasible?

Rivals and upstarts

As an amateur enthusiast's effort, Dragon Magazine isn't bad. There are a few adventure pokes included, with more promised, and a review and solution or two, so you may care to fork out the readies and try it, though there's no note of what a single sample issue would cost you. You can get details from Michael Edwards at 30 Broomhills, Welwyn Garden City, Herts AL7 1RF. And if you can tell him how to open the oyster in Pyramid of Doom at the same time, so much the better.

I seem to be surrounded by young upstarts and rivals at the moment, with Simon 'Can-I-get-in-every-issue' Hargrave still sending me tons of hints and tips to pass on to readers every month, so many that I think he must spend at least 25 hours a day playing Dragon adventures. Here's some of the latest batch, and as usual with lengthy tips I'll be printing them forwards rather than backwards, so look for the title of the game in each paragraph and decide whether you'd prefer to see the hints or miss them before reading on.

On *Wizard Quest* from Microdeal, there are five map levels: attic, first floor, ground floor, basement and secret passages. There also seem to be four types of keys, and to complete the quest you have to deposit seven objects in the right room: a horseshoe, lit candle, twig, crucifix, loaf, diamond and rabbit. To get the rabbit you must wave the wand over the hat.

Although it's not strictly my field, being an arcade-adventure, I'll nevertheless find a tiny space to squeeze in one of Simon's pokes for *Cuthbert and the Golden Chalice*. To extend the number of your lives, poke 30912 with the number you want, from 0-255. Poking it with zero, though, will tend to make the game somewhat tricky.

Next more tips on the tangled net of *Tanglewood*. To free a character, move Beanbag next to it and type "TOUCH". To make the rock cakes, get some flour and go to the kitchen in Dogwood Cottage and COOK CAKE. To get Peabody, first get the spade and dig in the western garden then drop the bone in the Doghouse. Feed the carrot to the rabbit (pretty hard one to figure out, that one). Tell Peabody to dig on the island. To get the specs for Foghorn, use the fishing rod. Search Mallow Marsh at night.

A problem that's apparently confusing lots of players is how to get the whiskers, and that's hardly surprising when you see the lengthy details of how to do it. Simon's solution is first to send Bruce in via the eastern entrance of Dwarf Dive to the mushroom with the reset button and get him to press it then leave via the lifts out through the northern exit. Step two is to send Foghorn in through the northern entrance and down the lifts to the western mushroom two-thirds of the way down the left side of the screen and then up and out through the southern exit. Next step is to switch from Foghorn to any other character, type TIME, switch back again, SLEEP Foghorn, then TIME again. Then take Foghorn to Goliath, avoiding the subway where you will be mugged and lose the whiskers. Transfer the whiskers and put Foghorn in a safe place. Finally switch to Goliath and tell him to wear the whiskers. The third mushroom holds the Archangel in a vase and Goliath can then get him. Got that? Phew!

Hargrave the Happy Hacker has also come up with a full list of verbs for *Tanglewood*, but some of the abbreviated ones are rather puzzling. The verb list includes BRE (breathe?), RE (read?), SP (spring?), PRO and WED. Any suggestions as to the use of those last two? Simon's offering help on *Tanglewood* as far as he's got, and on lots of other adventures he's finished, too numerous to list in full, so check it out with him on his Prestel mailbox no. 453860361 or at Crawley Hill Farm, Uley, Dursley, Glos GL11 5BH. If you've ever passing through Gloucester you could probably spot Simon's home by the steam rising out of his Dragon and listening for the deafening sound of keyboard bashing.

Craig Graham of 21 Alnwickhill Gardens, Edinburgh EH16 6NF both has help and needs help. He's stuck for one thing on a Tandy adventure called *Bedlam*, so can anyone help him? You adventure-starved people out there might also care to note that this is one Tandy adventure that obviously does run on a Dragon. Craig also needs help in *Syzygy*, where he keeps getting transported into space when he enters the co-ordinates and pulls the lever, but offers co-ordinate help in Trekboer, the numbers needed being 7112, 1042, 3816, 8350. I know I've given these before, but my postbag tells me that newcomers are still starting adventures every month, and they may find the information useful, along with Craig's tips for the same game that you must climb the cenotaph to get the amulet, and to keep the plant alive you must put the ice in the tank then plant the plant in the room with the lamps.

People who are new to adventures often write in and apologise for asking questions on adventures they assume must be very easy for seasoned players, and then the questions they ask show me they're getting on very well with the games, or they're asking about adventures that are pretty tough for everybody. There are no hard and fast rules with adventures. One person's doddle is another person's nightmare. I've found games like *Black Sanctum, Sea Quest, Shenanigans* and *Calixto Island* very straightforward, with the likes of *El Diablero* and *Return of the Ring* giving me the heebie-jeebies, but then I'll get a letter from someone saying they finished *El Diablero* in an evening, but can't get anywhere on *Black Sanctum* after weeks of trying.

Newcomers and toughies

You mustn't be put off if you find your first adventure really daunting and difficult. It may well be that you've simply started on one of the tougher games. Lots of people have heard of Scott Adams adventures, for instance, and therefore decide to begin their adventuring on one of his games. I certainly wouldn't recommend those for a newcomer! I'm not too keen on those games anyway, as the screen layout is very confusing and unattractive, and also the problems often require your brain (or vocabulary) to be turned round through ninety degrees at least. Try other adven-

tures if your first one proves a toughie — and believe me, they do get easier as you go along and pick up the tricks of the adventurer's trade.

Duncan Collins of 8 High Road, Broom, Biggleswade, Beds offers help to anyone stuck in *Calixto Island* or *Shenanigans*, which he says he found remarkably easy and yet other adventurers are obviously struggling with. Here are a few of Duncan's tips to be going on with. In Calixto Island, *if you can't get out of the first few locations: GUR EKAT. If you can't get out of the storage cellar: YLLUFERAC GNIHTYREVE ENIMAXE. If you can't get up the hill: STOOB EHT RAEW. If you want the machete: GUR EHT EDART.*

In Shenanigans, if you don't know which mailbox to open: ROOD EHT TA KOOL. If muggers prove to be a problem: EFINK NEPO. If you can't find your way out of the city streets: REEB A EVAH. To get past the snake: KCORMAHS EHT PORD. And if you can't get across the ravine: NAES YAS. Duncan will answer any of your other questions on these adventures in exchange for the usual SAE, and that obviously also applies when writing to anyone else in these pages — and that includes me! In fact my postbag seems to be dwindling a little since the magazine went subscription only. It does make life easier, but it's not half as interesting. Perhaps you might be more inclined to write if I tempt you with another freebie — this time a solution for *The Vortex Factor*, which I know lots of people have had problems with. And while you're writing, tell me what else you've been up to — in the world of adventures, that is. This is Dragon User, after all, not the News of the World.

Adventure Contact

To help puzzled adventurers further, we are instituting an Adventure Helpline — simply fill in the coupon below, stating the name of the adventure, your problem and your name and address, and send it to Dragon User Adventure Helpline, 12/13 Little Newport Street, London WC2H 7PP. As soon as enough entries have arrived, we will start printing them in the magazine.

Don't worry — you'll still have Adventure Trial to write to as well!

Adventure ....

Problem ....

....

Name ....

Address ....

....

Adventure Contact

Adventure: (1) *Trekboer* (2) *Tanglewood*
Problem: (1) I remove spacesuit and try to cross the bridge and it breaks. (2) Everything!
Name: Mark Jackson
Address: Oakdene, Wheelers Hill, Lt. Waltham, Chelmsford, Essex CM3 3LV

Adventure: *Tanglewood*
Problem: I have found Peabody but cannot get any further in the adventure. Help!
Name: Mark Coops
Address: 16 Willows Drive, Meir Heath, Stoke-on-Trent, ST3 7LZ

Adventure: *Total Eclipse*
Problem: When I approach an adandoned craft, the keyboard hangs up and I'm left in space. SOS.
Name: Joe Brincat
Address: 73 Annunciation Str., Hamrun, Malta. *(Thanks for the best wishes, Joe.)*

Adventure: *Trekboer*
Problem: How do I open the cabinet, and the access panel, and where can I find a space suit so that I can walk on the planet?
Name: Alexander Holm
Address: Hogdaveien 3d, 0680, OSLO 6, Norway.

Adventure: *Return of the Ring*
Problem: I have got the time ring, but I cannot use it. What do I do next?
Name: Derek Standbrook
Address: Ashfield Cottage, Howe Green, Hertford, Herts.

Adventure: *Vortex Factor*
Problem: What is the safe combination? What do I do in the pyramid?
Name: Johan Korsvold **Address:** 2824 Redhalen, Norway.

Communication

Problem: wanted: a supplier of paper on a roll for my Gemini 10X printer (listings quality).
Enquirer: John Appleyard, 17 Carr Bridge Avenue, Leeds, LE16 7JZ.

Problem: I want a copy of the Spirit Basic Compiler. Is anybody selling theirs, or does anybody know where I can get a copy?
Enquirer: John Foster, 94 The Oval, Firth Park, Sheffield S5 6SP.

Problem: Does anyone know where I can get a copy of Dragon Data's Information for Machine Code Users, also a new copy of the circuit diagrams (mine are getting a bit tatty now)?

Secondly, does anyone know where I can get information on the circuits, and software, as mentioned in *Electronics and Computing Monthly* for connecting a Dragon to a BBC's tube, dated 1985?
Enquirer: D. Loosemore, 15 Brynmead Close, Tycock, Swansea, S. Wales SA2 9EY.

Problem: Can anyone suggest a foolproof solution to cure I/O errors on an Omega cassette recorder?
Enquirer: Paul Smith, 17 Balham Close, Rushden, Northants NN10 9JL.

Problem: As I now have a high quality printer, I am in a position to offer a service. For 50p per 1000 lines I can print single or multiple copies of your Basic programs (for runs worth over £5 please enquire.

However, I desperately need a high quality hi-res screen dumper, like the one which appeared in February 1985's *Dragon User*. It must be compatible with the Panasonic KX-P1080.
Enquirer: R. B. Rogers, 25 Elvington, Kings Lynn, Norfolk PE30 4TB.

Problem: Does anyone have any *Dragon Users* from 1985 which they could sell?
Enquirer: Robin Hemmings, 8 Ingleby Road, Wigston, Leicester LE8 1DQ

Problem: Can anyone in Belfast tell me where to get roll paper for my Brother HR5. I have tried everywhere I know.
Enquirer: Desmond King, 68 Farnham St., Ormeau Road, Belfast BT7 2FN.

Write down your problem on the coupon below (make it as brief and legible as possible) together with your name and address and send it to Communication, Dragon User, 12/13 Little Newport Street, London WC2H 7PP.

Problem ....

....

....

Name ....

Address ....

....

Never a cross word

***Gordon Lee** continues the vocabulary of terms and sets a number puzzle.*

THIS month we are continuing our glossary of terms frequently used in the field of recreational mathematics.

Divisor. (See Factor.)

Dodecahedron. One of the Platonic solids having twelve regular pentagonal faces.

Exponent. The number indicating the power of a quantity. The exponent of 10 in 10^7 is 7.

Factor. The factorial of a number is the product of all whole numbers from that number down to 1. Factorial 6, usually written as 6!, is 6x5x4x3x2x1 = 720. Factorials are frequently used in permutational problems.

Fermat, Pierre de, Seventeenth century mathematician noted for many important discoveries in number theory. His 'Last Theorem', which is believed to be true but which is still unproven, states that the equation $x^n + y^n = z^n$ has no solution in whole numbers where *n* is greater than 2. Where *n* equals 2 we have the Pythagorean relationship of the sides of right-angled triangles, eg. $3^2 + 4^2 = 5^2$, of which an infinity of whole number solutions exist. However, for higher powers, no solutions have been found.

Fibonacci. The greatest European mathematician of the Middle Ages. He was the first to introduce the Arabic (denary) system of notation in favour of the clumsy Roman system. The 'Fibonacci series' is named after him.

Fibonacci series. A series of numbers, each term being the sum of the preceding two terms. The simplest such series is 1, 1, 2, 3, 5, 8, 13, 21 ... Such series possess many unusual properties.

Figurate numbers. Various numbers which have a related 'geometrical' relationship. In their simplest form they are either linear (two-dimensional), or solid (three dimensional). The simplest linear series are the 'triangular' numbers, ie numbers in the series 1+2+3+4+5+6+... These represent the number of coins which can be placed on a plane surface to form a triangular arrangement. Other linear series include the square, pentagonal, and hexagonal numbers. Solid figurate numbers include tetrahedral and pyramidal numbers. (*qqv*).

Golden ratio. An irrational mathematical constant which has the habit of popping up in many unusual guises. For example, it is the only positive number which becomes its own reciprocal by subtracting 1. It is often known by the Greek letter phi. Its value, to eight decimal places, it 1.61803398...

Hexahedron. The cube. One of the five Platonic solids, having six identical faces, each a perfect square.

Icosahedron. A regular solid figure having twenty identical triangular faces. One of the Platonic solids.

Integer. Whole number — ie not a fraction or decimal.

Irrational number. A decimal which cannot be exactly expressed. Typical irrationals are values such as pi, or the square root of 2. Although these values can, at least in theory, be expressed to any required degree of accuracy, the full value can never be evaluated.

Lucas, Edoard. 19th century French number theorist. Popularised the well-known 'Tower of Hanoi' puzzle, and did much work on the properties of the Fibonacci series. The 'Lucas Series' is a set of numbers formed in the same way as the Fibonacci series, but using the initial values of 1 and 3. The first ten values of the Lucas series are: 1,3,4,7,11,18,29,,47,76, and 123.

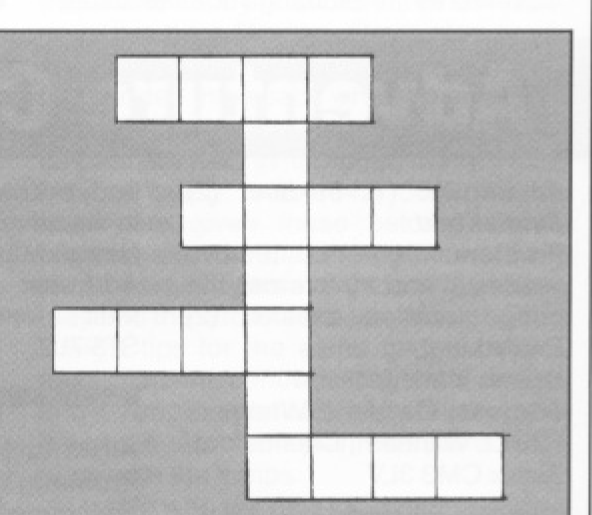
Mersenne Number. A number of the form (2^n -1), where n is a prime. They are of significance in the search for the highest known prime. If the number it itself prime, it is called a 'Mersenne prime'. (see below)

Final instalment next month.

The Competition

FOR this month's competition problem we have an easy cross number puzzle. In the grid you are required to insert a four-digit number into each of the 'across' lines (the same number repeated in each). The seven-digit number 'down' is the square of that number!

Can you find what that number is? The problem is not too difficult, so come on all of you who have always thought that the competitions were difficult! Now's your chance to win some prizes!



Prize

NEVER a cross word at *Dragon User*. We're sticking with the cross numbers. Find them all, and you will be on the pile for a copy of Microdeal's newest Dragon game, Stone Raider II by Rolf Michelsen. The hero is Mario (is he the mysterious Spanish Mole?), dodging death among the rocks and gems while he gathers precious stones to get him out of the caverns before the (and his) time is up. Twenty copies await the fortunate.

Rules

Do as the man says — find the number. When you have located it, send us a copy of the listing you used, plus any additional notes or observations you have made (no cassettes this time), to us as *Dragon User*. Mark your envelope JANUARY COMPETITION and don't forget to include a name and address — your own if you want to be the recipient of the prize, your mother-in-law's if you don't fancy it.

To make life just that little bit harsher, you must also complete the phrase 'Gems and stones may break my bones ...' in any way that seems fit to you, and we will hold your pearls of prose up to the light and rub them against our sleeves when deciding the lucky few. So get polishing.

December winners

The winners of *100 Screen Frankie* from Quickbeam Software are: Paul Weedon of Wotton-under-Edge, D. Denman of Twickenham, Terry Potter of Chiseldon, D. J. Gray of Middlesbrough, P. Morgan of Bristol, Phil Sapiro of Liverpool, David Freeman of Pontypridd, E. A. Newman of Addlestone, S. Friedland of York, Alan Thomas of Staplehurst, E. C. Hastead of Erith, T. Fawcett of Hendon, G. R. Barber of Sutton Coldfield, C. Hitchinson of Middlesbrough, Simon Aubrey of Swindon, M. Corney of Plymouth, Frank Hanney of Rochester, Keith David of Crawley, Fred Willers of Yarnfield, and S. A. Siddiqui of Chiswick.

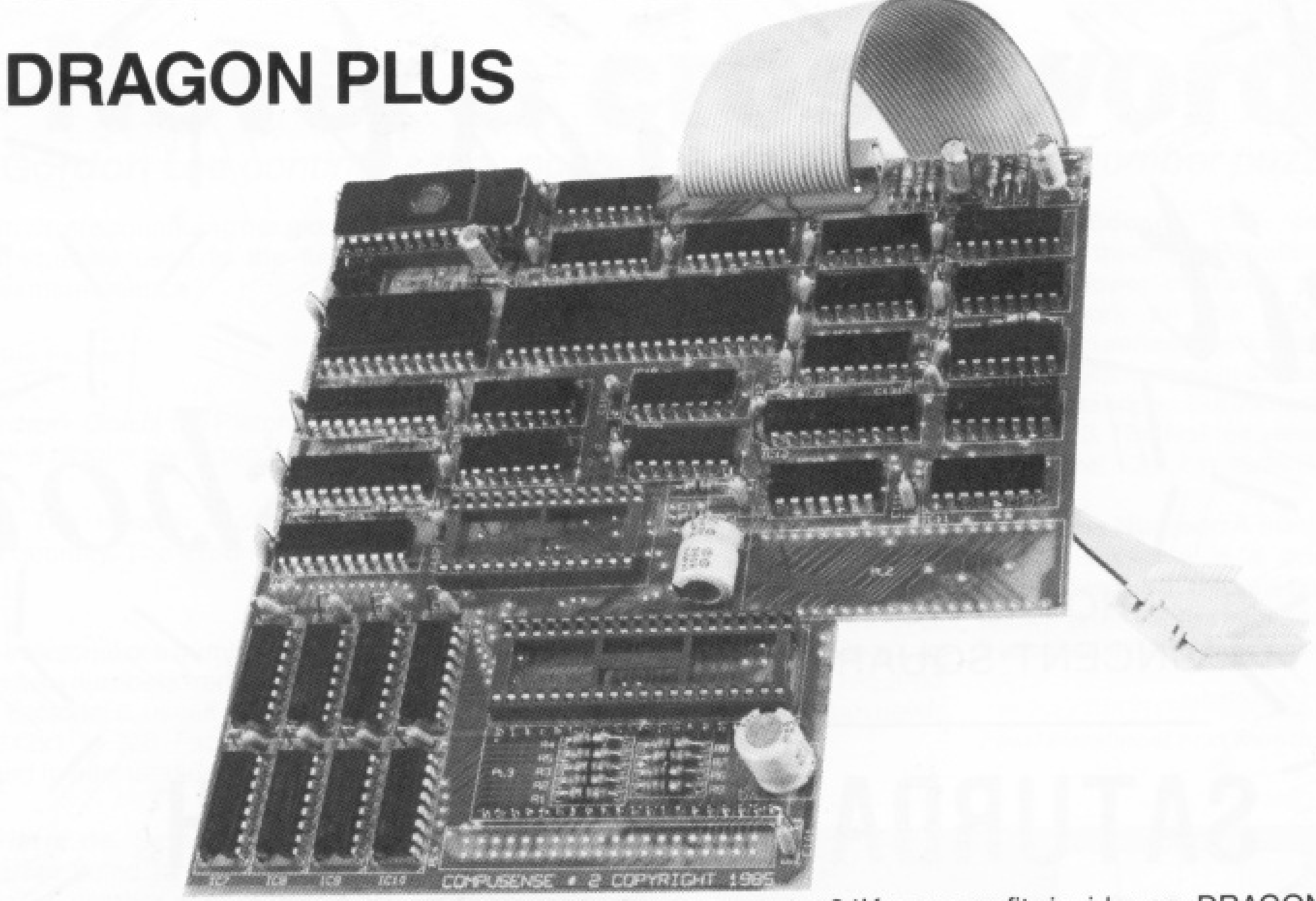
Sid made an uncommon number of appearances in Frank's tiebreaker, but honours mention goes to Terry Potter, who writes 'I want to be perfectly Frank, but can I still wear my high heeled shoes?' So *that's* why they can't find Sid...

Solution

See page **27**.


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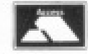
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